Petition

81-602

Office - Supreme Court, U.S.
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No. _____

IN THE

SUPREME COURT OF THE UNITED STATES

October Term, 1981

MOLINS MACHINE COMPANY, INC.,
Petitioner,

v.

RENGO CO. LTD., ET AL,
Respondents

PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT

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QUESTIONS PRESENTED

A. Is the Constitutional standard for patentability of a combination of old elements enunciated in *Great A & P Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147 (1950) no longer valid, as the Court of Appeals below held, because of *Graham v. John Deere Co.*, 383 U.S. 1 (1966) and the enactment of the 1952 patent statute, notwithstanding that *A & P* has been cited for this standard in *Graham* and in each of this Court's five (5) subsequent cases involving validity and infringement, and in at least 473 opinions of the United States Courts of Appeals since such enactment?

B. Is it reversible error for a District Court to consider synergism in determining the obviousness of a combination patent?

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PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT

Molins Machine Company Inc. prays that a writ of certiorari issue to review the judgment and opinion of the United States Court of Appeals for the Third Circuit, entered in this case on July 20, 1981.

OPINIONS BELOW

The opinion of the United States Court of Appeals for the Third Circuit dated July 20, 1981 (A 1-39) is not yet reported. The opinion of the United States District Court for the District of New Jersey dated July 31, 1980 (A 40-95) is not yet reported.

JURISDICTION

Jurisdiction in the Federal District Court was based on 35 U.S.C. 271, 281 and 28 U.S.C. 2201, 2202.

The Court below on July 20, 1981 issued an opinion (A 1-39) and judgment (A 96). Jurisdiction is invoked under 28 U.S.C. 1254(1).

CONSTITUTIONAL PROVISION AND STATUTE

The constitutional provision and the statute involved are:

> (a) Article 1, Section 8 — Congress shall have power . . . . To promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and inventions.
>
> (b) 35 U.S.C. 103 — A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

STATEMENT OF THE CASE

This case involves the validity of a patent claiming a combination of old elements.[1] The District Court, while applying the tripartite inquiry of *Graham v. John Deere Co.*, 383 U.S. 1 (1966), found the patent invalid because under *Great A & P Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147 (1950) a patent for a combination of old elements must meet a " 'rather severe test' of obviousness" (A 70). The Court of Appeals vacated the decision on validity and held that the negative rules of invention under *A & P* were abolished by the 1952 Patent Act (footnote 10, A 12-13) or abolished by *Graham v. John Deere Co.*, 383 U.S. 1 (1966) (A 13-14, 16).

The District Court also made inquiry as to whether the patented combination produced a non-obvious "synergistic result", citing *Anderson's-Black Rock, Inc. v. Pavement Salvage Co., Inc.*, 396 U.S. 57 (1969) as well as *A & P* (A 69). The Court of Appeals ruled that the District Court had "engrafted" a synergism requirement onto the *Graham* analysis (A 15). Characterizing synergism as an "embellishment", the Court of Appeals asserted that "post-*Graham* developments must be understood in order to evaluate its propriety", and then interpreted and negated this Court's holdings in *Anderson's-Black Rock, Inc. v. Pavement Salvage Co., Inc.*, 396 U.S. 57 (1969) and *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273 (1976) (A 15-22). The Court of Appeals noted the

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1. There was no dispute that the patented combination consisted of old elements. This was conceded by the patent owner and repeatedly found by the District Court in findings not upset by the Court of Appeals (A 42, 45-46, 68-69, 70). See, for example:

> "While there can be no serious dispute that all of the component elements of the patented combination appear in some form in the prior art, plaintiff argues that the combination of these elements into a machine capable of effecting an order change at full running speed and without deliberate waste constitutes a patentable improvement over the art." (A 68-69)

dichotomy not only with other circuits, but even conflicting precedent within the Third Circuit (footnotes 17, 18, A 17-18).

The concurring opinion (A 36-39) stated:

> "Moreover, I should have been content to continue the present ambiguous stance with respect to synergism described in note 17 of the majority opinion, rather than to stand up and be counted in the current synergism controversy." (A 37)

REASONS FOR GRANTING THE WRIT

A & P Is Not Inconsistent With *Graham* Nor *The 1952 Patent Act*, And Is Still Good Law

A & P held at 340 U.S. 152:

> "Courts should scrutinize combination patent claims with a care proportional to the difficulty and improbability of finding invention in an assembly of old elements."

The Court of Appeals held that this rule of *A & P* was a negative rule of invention which was abolished by the 1952 Patent Act, or by this Court in *Graham:*

> "Significantly, the Supreme Court in Graham seemed to regard Section 103 as abolishing the judicially fashioned 'negative rules of inference' . . ." (A 13).

All future opinions of the Third Circuit Court of Appeals, as well as those of the District Courts in the Third Circuit must now follow this ruling[2] which in effect overrules *A & P*.

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2. Chapter VII, ¶C at 25 (1978) of the Internal Operating Procedures of the Court of Appeals for the Third Circuit provides that " . . . no subsequent panel overrules a published opinion of a pre-

Since *Graham*, this Court, or its Justices, have cited *A & P* five times for its standard of patentability in respect to combination patents.[3] These five opinions constitute every subsequent opinion of this Court dealing with the issues of patent validity and infringement. Since the enactment of the Patent Act of 1952, this *A & P* standard has been cited by Courts of Appeals at least 473 times.

As held in *Graham* at 383 U.S. 3-4, the 1952 Act did not change the level of patentability but merely codified judicial precedents. Hence, neither *Graham* nor the 1952 Act abolished the negative rules of invention, nor did either overrule *sub silentio A & P*.

In *Graham v. John Deere Co.*, Justice Clark relied heavily on the writings of Thomas Jefferson for an insight into the workings of the U.S. patent system. Jefferson clearly recognized the danger flowing from combination patents, and why rigorous standards of patentability were necessary with regard to combination patents. In *The Jeffersonian Cyclopedia*, a collection of Jefferson's writings, there appears a letter from Jefferson to Oliver Evans. Therein, Jefferson said this of combination patents:

> "If we have a right to use three things separately, I see nothing in reason or in the patent law, which forbids our using them together. A man has the

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vious panel. Court *en banc* consideration is required to overrule a published opinion of this court". Hence, the instant holding on *A & P* must be followed both by all district courts and by later 3 judge panels. This is so even though later panels of the Court of Appeals may feel that *Rengo* was erroneously decided, or in conflict with later dictum of the Supreme Court, c.f. *Tradewinds, Inc. v. Citibank, N.A.*, No. 81-1424 (3d Cir., 7/27/81).

3. *Roanwell Corp. v. Pantronics Inc.*, 429 U.S. 1004 (1976) (White, J. dissenting from denial of cert.); *Sakraida v. Ag Pro Inc.*, 425 U.S. 273 (1976); *Shultz, dba Walt Shultz Equip. Co. et al. v. Moore*, 419 U.S. 930 (1974) (Douglas, J. dissenting from denial of cert.); *Deepsouth Packing Co. Inc. v. Laitram Corp.*, 406 U.S. 518 (1972); *Anderson's-Black Rock, Inc. v. Pavement Salvage Inc.*, 396 U.S. 163 (1969).

right to use a saw, an ax, a plane separately; may he not combine their uses on the same piece of wood? He has the right to use his knife to cut his meat, a fork to hold it; may a patentee take them and the right to continue their use on the same subject; such a law, instead of enlarging our convenience, as was intended, would most fearfully abridge them and crown us by monopolies out of the use of the things we have." Letter to Oliver Evans, 1814. *The Jeffersonian Cyclopedia*, Funk & Wagnalls Co., 1900, Item No. 6449

The standard of patentability of a mechanical combination is a vital federal question which has been decided by the Court of Appeals in conflict with the decisions of this Court. Hence, clarification of the standard and of the vitality of *A & P* by this Court is essential.[4]

Synergistic Results Are Evidence Of Non-obviousness, Hence The Lack Of Synergistic Results Is A Proper Factual Inquiry By District Court

As noted by the Court of Appeals (A 15-21, 36-37), there is a severe split in the circuits as to "synergism", which was first mentioned by this Court in *Anderson's-Black Rock* three years after *Graham*. *Anderson's-Black Rock* has been cited for synergism at least 116 times, including by this Court in *Sakraida*, 425 U.S. 282.

The Court of Appeals held (A 18):

". . . *Black Rock* and *Sakraida* do not compel adoption of a synergism requirement."

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4. The treatise on 35 U.S.C. 103, *Nonobviousness — The Ultimate Condition Of Patentability*, Witherspoon, B.N.A., (1978) stated in reference to the *A & P* patentability standard for combination patents at 2:105:

"The third proposition of *A & P* [the patentability standard for combination patents] has caused the greatest difficulty, right up to the date of this writing, with respect to objectively determining patentability."

Assuming synergism is not a requirement of patentability, is it reversible error as found below for a court to consider synergism at all in reference to patentability?

The need for review by this Court is apparent from the following observation by the Court of Appeals (A 17):

> "Moreover, we note that our interpretation of *Sakraida* and *Black Rock* is not unique. Although there is a split among the authorities, at least four other federal courts of appeals have, in the wake of *Sakraida*, arrived at a similar analysis of the Supreme Court's precedents.[18]" [Citations in footnote 18 omitted]

Those Courts that require synergism as a prerequisite to patentability do so in a non-uniform manner (A 19-20, footnote 20).[5]

The vital importance of this issue is highlighted by the following statements of the Court of Appeals (A 20-21):

> "If applied consistently, a synergism requirement might well foreclose the validity of all mechanical patents.
>
> Additionally, we agree with the Seventh Circuit's observation in *Schlage Lock* [592 F.2d 963] that the synergism standard contravenes important objectives of patent protection."

In *Kearney & Trecker Corporation v. Cincinnati Milacron Inc.*, 562 F.2d 365, 370 (6th Cir., 1977) the Court explained what is meant by a "synergistic" effect:

> "Stated another way, there must be some 'unusual or surprising result' from a combination of old elements." [Citation omitted]

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5. While synergism is most frequently used as a test for obviousness under 35 U.S.C. 103, some courts also consider synergism as being related to newness, that is "to achieve a unique product", *Smith v. Acme General Corporation*, 614 F.2d 1086, 1093 (6th Cir., 1980). "New" is a requirement of 35 U.S.C. 101.

Unusual or surprising results may be evidence of patentability,[6] but the lack of such results is not conclusive of obviousness, *Walt Disney Productions v. Niles Communication Center*, 369 F.2d 230, 234 (7th Cir. 1966). The position of the Patent and Trademark Office is in accord, see *Ex parte Kaiser*, 194 U.S.P.Q. 47, 48 (Pat. Off. Bd. App. 1977):

> ". . . it is noted that the presence of an improved result is persuasive of patentability but the absence of such a showing is not conclusive of unpatentability."

If it is proper to inquire as to unexpected results and refer to them as synergism, such inquiry cannot be an improper legal consideration, as stated by the Court of Appeals.

This Court should now resolve the relationship between synergism and patentability. See the prize winning article entitled "*The Synergistic Result And Section 103: Toward Rejection Of A Rhetorical Embellishment* by Joseph E. Root, III, 23 *Idea* 11 (1981):[7]

> "Synergism thus emerges as an enigma. The Supreme Court has never defined it except by showing what it is not. Nor has the Court provided an example of what might constitute a synergistic result. Indeed, there seems to be some disagreement that such a standard exists. (id. at 21)
>
> ************
>
> The Supreme Court has thus saddled lower courts and practitioners with a term that has no intrinsic meaning in a mechanical context and that actually drives attention from the statutory inquiry. Moreover, the Court has done so with no guidance whatsoever on the correct application of the term." (id. at 31)

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6. See *United States v. Adams*, 383 U.S. 39 (1966) wherein nonobviousness was based on unexpected results.

7. The article won the American Patent Law Association's Robert C. Watson Award for 1981.

CONCLUSION

For the foregoing reasons, a writ of certiorari should be issued.

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APPENDIX

UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

Nos. 80-2556 & 80-2557

RENGO CO. LTD. and SIMON CONTAINER MACHINERY LIMITED,
Appellants in No. 80-2556

v.

MOLINS MACHINE COMPANY, INC.,
Appellant in No. 80-2557

ON APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW JERSEY

(D.C. Civil No. 78-02000)

Argued March 23, 1981

Before: ADAMS and GARTH, *Circuit Judges*
and DUMBAULD, *District Judge**

(Filed July 20, 1981)

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*Honorable Edward Dumbauld, Senior Judge, United States District Court for the Western District of Pennsylvania, sitting by designation.

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OPINION OF THE COURT

ADAMS, *Circuit Judge*

This appeal requires us to decide the proper role for the patent law concept of "synergism," the proposition that to serve as the subject of an enforceable patent a combination of known elements must somehow exceed the sum of its parts. Additionally, we are faced with questions regarding the priority to be accorded a foreign patent application and the scope of disclosure in a domestic application. Because we believe that the district court — which decided that the patent in question was not enforceable — erred in imposing a synergism requirement, we vacate and remand.

I.

On August 27, 1974, the United States Patent Office issued Patent No. 3,831,502 ("the '502 patent") to plaintiff Rengo Co., Ltd., as assignee of the named inventor, Masatero Tokuno. The patented apparatus includes portions of a "corrugator," a machine that manufactures the three-ply paperboard from which the familiar cardboard box is made.

Production of corrugated paperboard begins with the introduction of three webs of paper into the machine. The machine initially corrugates (*i.e.*, flutes) one web, and the flutes of the opposite surfaces of this sheet are glued to the two flat webs of single-ply paper. The

resulting three-ply web then passes over a heating bed where the glue is set and dried.

The paperboard next travels to the "slitter-scorer" complex. This series of instruments first slits the web along the running direction into two or more bands of selected width, and then, in the operation known as "scoring," imposes longitudinal creases on each of these strips in order to facilitate the subsequent construction of the boxes. Finally, the web passes to a rotary shear that cuts across the paperboard, producing box blanks of predetermined length.

By changing the pattern of slitting and scoring, a single corrugator can manufacture cardboard boxes of various sizes and configurations. Moreover, a corrugator may be equipped with more than one slitter-scorer unit. As a result, while one unit is in operation the other is accessible for adjustment to accommodate the next run. Before the development of the subject invention, an operator of a corrugator who desired to effect an "order change," *i.e.*, a change in the slitting and scoring pattern, would use the rotary shear to make a transverse cut in the paperboard web. The portion of the web downstream of the transverse cut would pass through the slitting and scoring rolls then in operation. When the old order was completed, the portion of the web behind the point of severance would proceed to the slitting and scoring rolls arranged in the desired new pattern. An order change effected by this method requires the operator to stop the corrugator completely, or at least to slow the running of the paperboard web through the machine. A decrease in the productivity of the machine thus inevitably attends an order change.

The subject matter of the patent in suit was designed to improve the efficiency of conventional corrugators by performing the slitting and scoring operation without suspending or reducing the running speed of the web during an order change. The patented apparatus comprises a conventional rotary shear, located up-

stream of two conventional slitter-scorer units. The combination also contains a movable feeding plate that can direct the web to an upper path, which leads to one of the slitter-scorer units, to a lower path, which leads to the other slitter-scorer unit, or to an intermediate path, which flows between the two slitter-scorer units. To effect an order change, the rotary shear makes a single transverse cut in the web, and the feeder plate instantaneously diverts the leading edge of the severed web to the slitter-scorer not previously in use. The difference in conception between conventional corrugators and corrugators equipped with the patented device can be put simply: In the conventional device, the paperboard web travels along a single pathway; during order change, a new slitter-scorer unit moves into the path of the board to engage the web. The patented device, by contrast, changes the path of the web to meet the new slitting and scoring unit.

Rengo initially developed a corrugator capable of instant order change in Japan. It installed machines employing the new patented apparatus at two of its Japanese plants in January 1972, and filed Japanese patent applications in February and April of the same year. Rengo filed its application for an American patent in January 1973.

During the middle 1970's, the Langston Division of defendant Molins Machine Company, in response to market pressures and consumer demands, set about to develop a corrugator capable of performing instant order change. In 1976, two representatives of Molins visited Japan and observed the operation of a Rengo corrugator. In December 1977, Langston began development of corrugator apparatus similar to the device which Rengo had already patented. Like the Rengo mechanism, the Langston version achieved instant order change by diverting the flow of paperboard from one set of slitters and scorers to another. The principal difference between the two devices is that Langston employs only two flow

paths, or "board lines," whereas Rengo utilizes three. Langston offered its instant order change system for sale in early 1978, and installed a prototype later that year at the Louisville plant of the Mead Corporation. Another corrugator employing the Molins double board line system went into commercial operation in December 1979.

A.

In August 1978, Rengo filed a complaint in the District Court for the District of New Jersey, alleging that Molins had infringed claims 1 and 24 of the '502 patent. Molins denied infringement and requested that the court declare the '502 patent invalid and, in any event, not infringed. In addition, Molins asserted by way of a counterclaim that Rengo had violated the antitrust laws.

After a four day trial, the district court, finding the '502 patent invalid, entered judgment in favor of Molins. The court recognized that an inquiry into validity requires comparison of the patented device with the state of the art before the invention. In this case, the district court, in order to make the comparison, had first to determine whether the Japanese filing date, as opposed to the American filing date, should be considered the date of invention. After resolving this issue in favor of Rengo, the court nonetheless went on to hold the '502 patent invalid. The court's disposition of this issue rested to a considerable extent on its finding that the patented device did not demonstrate a "synergistic result."

Although an invalid patent cannot be infringed, the court next considered Rengo's infringement claims, reasoning that a resolution of these questions might expedite final disposition of the case if the court of appeals reversed the district court's ruling on validity. Finding that the Molins and Rengo machines were equivalent in means, operation, and result, the court held that the '502 patent, if valid, was infringed. Finally, the court considered and dismissed Molins' antitrust claim.

Rengo appeals from the court's finding that the '502 patent is invalid, while Molins cross-appeals from the court's determination that the patent, if valid, was infringed.

II.

Initially, we confront a potential barrier to our jurisdiction. Rengo predicated its complaint on a theory of infringement, as that term is defined in 35 U.S.C. §271(a): "Whoever without authority makes, uses or sells any patented invention, within the United States during the term therefor, infringes the patent."[1] At the time Rengo filed its complaint, however, Molins had done no more than advertise and solicit orders for its new instant order change apparatus; it had not yet begun the manufacture or sale of the equipment. Molins contends that its conduct at the time Rengo instituted the lawsuit did not rise to the level of infringement within §271(a). A jurisdictional prerequisite to the maintenance of the infringement action was therefore lacking, and, Molins asserts, both the district court and this Court lack authority to adjudicate Rengo's claim.

Without deciding whether the district court had jurisdiction over Rengo's original cause of action,[2] we conclude that the court had power to consider the issues of patent validity and infringement. Regardless of deficiencies in the complaint, Molins' assertion of a counterclaim, in which it requested the court to declare that the '502 patent was invalid and that it was not infringed,

1. The federal district courts have jurisdiction over suits for patent infringement by virtue of 28 U.S.C. §1338(a).

2. There is authority for the proposition that promoting, advertising, and soliciting orders for a product, as opposed to actual manufacturing, selling, or using it, do not constitute infringement within §271(a). *See* Knapp Monarch Co. v. Casco Prods. Corp., 342 F.2d 622, 626 (7th Cir. 1965); Powerlock Floors, Inc. v. Robbins Flooring Co., 327 F. Supp. 388, 390 (D. Del. 1971), *aff'd*, 464 F.2d 1022 (3d Cir. 1972).

conferred jurisdiction on the district court over both questions.

The actual manufacture, use, or sale of an allegedly infringing device is not a condition precedent to a suit seeking declaratory relief against the holder of the patent. In order to maintain an action, it is sufficient that the potential infringer have the "immediate intention and ability to practice the invention."[3] In *Wembley, Inc. v. Superba Cravats, Inc.*, 315 F.2d 87 (2d Cir. 1963), the plaintiff requested a declaration that the defendant's patent was invalid, or alternatively, that plaintiff's proposed use would not infringe the patent. Although the plaintiff had not yet begun production, the Second Circuit held that this, without more, would not bar the suit. The court reasoned that "it would be economically wasteful to require a plaintiff to embark on an actual program of manufacture, use or sale which may turn out to be illegal." Commending this analysis in *Super Products Corp. v. D P Way Corp.*, 546 F.2d 748, 753-55 (7th Cir. 1976), the Seventh Circuit held that a party possessing the "apparent ability and a definite intention . . . to manufacture and sell a product similar to the one described in [the contested] patent" can press for declaratory relief, provided it has a reasonable apprehension that it will face an infringement suit if it continues the activity in question.

In the present case, no jurisdictional impediment barred adjudication of Molins' request for declaratory relief concerning patent validity and infringement. By advertising and soliciting orders, Molins manifested a "definite intention" to manufacture the accused device. Moreover, Molins' installation of an instant order change system in November 1978, just two months after it filed

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3. Wembley, Inc. v. Superba Cravats, Inc., 315 F.2d 87, 90 (2d Cir. 1963); *accord*, Super Prods. Corp. v. D P Way Corp., 546 F.2d 748, 753-55 (7th Cir. 1976); Welch v. Grondle, 251 F.2d 671, 678 (9th Cir. 1957).

its original answer and counterclaim, establishes its "apparent ability" to produce a possibly infringing device. In addition, Rengo's initiation of an action for infringement left no doubt that Molins would be forced to defend itself if it continued to manufacture and sell the accused machinery.

Notwithstanding the question of jurisdiction over the original complaint, then, the district court had jurisdiction over the Molins counterclaim. And because the counterclaim raised the same issues that the complaint presented — whether the '502 patent was valid and, if valid, whether it would be infringed by the Molins device — the court had power to decide those issues. Further, a jurisdictional defect in the complaint will not preclude adjudication of a counterclaim over which the court has an independent basis of jurisdiction. As we stated in *National Research Bureau, Inc. v. Bartholomew*, 482 F.2d 386, 388-89 (3d Cir. 1973) (per curiam): "Once an issue with independent subject matter jurisdiction is before the court and jurisdiction over the parties has been perfected, it must be allowed to proceed to a conclusion pursuant to the rules of civil procedure like any other routine federal claim . . . [w]here, as here, jurisdiction is independent, the counterclaim must be allowed to proceed without regard to the fate of the original claim."[4] Thus we need not decide whether Rengo's complaint is cognizable in federal court. It is enough to say that the

4. In *Bartholomew*, we were clear, moreover, that the status of the counterclaim as compulsory or permissive does not affect jurisdiction. As long as the court has an independent basis of jurisdiction, *i.e.*, as long as jurisdiction over the counterclaim is not ancillary to jurisdiction over the main claim, the counterclaim remains cognizable despite the dismissal on jurisdictional grounds of plaintiff's action. *Accord*, Kyle Eng'r. Co. v. Kleppe, 600 F.2d 226, 232 (9th Cir. 1979); Duncan v. First Nat'l Bank, 597 F.2d 51, 55 (5th Cir. 1979); Ferguson v. Eakle, 492 F.2d 26, 28 n.6 (3d Cir. 1974); Rare Earth, Inc. v. Hoorelbeke, 401 F. Supp. 26, 34-35 (S.D.N.Y. 1975).

district court, having an independent basis for jurisdiction over Molins' counterclaim, had the authority to adjudicate the issues of patent validity and infringement raised therein.

III.

The most significant question in this case is whether the district court tested the '502 patent against the appropriate standard. Rengo argues that the court, in requiring a demonstration of "synergism," improperly supplemented the statutory criteria for patent validity. To resolve this issue, we first must ascertain whether the synergism test is mandated either by statute or by recent Supreme Court decisions. After examining the relevant precedents, we will consider whether such a test, even if not required, might nonetheless comport with modern principles of patent jurisprudence.

A.

Between 1790 and 1952, the American patent statutes expressly referred to only two prerequisites to the grant of a patent: novelty and utility.[5] These elements, presently codified at 35 U.S.C. §§101 and 102,[6] did not

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5. The first United States patent statute, adopted in 1790, *see* Act of Apr. 10, 1790, ch. 7, §1, 1 Stat. 109, provided that a patent should issue only if the invention was "sufficiently useful and important." The Patent Act of 1793, *see* Act of Feb. 21, 1793, ch. XI, §1, 1 Stat. 318, authored by Thomas Jefferson, modified the "useful and important" requirement by eliminating both the reference to importance and the modifier "sufficiently." From 1793 until 1952, the operative statutory criteria were novelty and utility. *See* Kitch, *Graham v. John Deere Co.: New Standards for Patents*, 1966 Sup. Ct. Rev. 293, 303 & n.40.

6. Section 101, 35 U.S.C. §101, provides:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

exhaust the standards of patent validity, however. As early as 1851, the Supreme Court added a third condition, denominated "invention," for the issuance of a patent. The Court noted in *Hotchkiss v. Greenwood*, 52

NOTE 6 — *(Continued)*

Section 102, 35 U.S.C. §102, provides:

> A person shall be entitled to a patent unless—
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or
>
> (c) he has abandoned the invention, or
>
> (d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs; (1), (2) and (4) of section 371(c) of this title before the invention thereof by the applicant for patent, or
>
> (f) he did not himself invent the subject sought to be patented, or
>
> (g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

U.S. (11 How.) 248, 267 (1851): "Unless more ingenuity and skill . . . were required . . . than were possessed by an ordinary mechanic acquainted with the business, there was an absence of that degree of skill and ingenuity which constitute essential elements of every invention. In other words, the improvement is the work of the skillful mechanic, not that of the inventor."

For the next one hundred years, elaboration of the invention requirement devolved on the judiciary, as the patent statute continued to embody the dual standard of novelty and utility.[7] During this period, the courts developed so-called "negative rules of invention," — decisions that certain types of improvements or changes did not exhibit the requisite degree of inventiveness.[8] Significantly for our purposes, the Court stated on several occasions that a combination of known elements would not be patentable "unless some new and useful result, an increase of efficiency, or a decided saving in the operation, is clearly attained."[9] Although the Court originally focused on a "new and useful result," this test developed into a standard applicable to the component parts, as

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7. Although Congress revised or modified the patent statute some 50 times between 1793 and 1950, *see* Graham v. John Deere Co., 383 U.S. 1, 10 (1966), it did not codify the *Hotchkiss* requirement during this period. *See, e.g.*, Act of July 8, 1870, c. 230, 16 Stat. 198.

8. Walker summarized the "negative rules" in an early edition of his treatise. *See* Walker, Patents 26-36 (2d ed. 1889). His summary of the rule applicable to combination patents forbade combining "old devices into a new article without producing any new mode of operation."

9. Hicks v. Kelsey, 85 U.S. (18 Wall.) 670, 673 (1874); *see* Seymour v. Osborne, 78 U.S. (11 Wall.) 516, 548-49 (1871) (combination must produce "new and useful result"); Pickering v. McCullough, 104 U.S. 310, 318 (1881) (elements in a combination must be "joint tenants in common"); Lincoln Eng'r. Co. v. Stewart-Warner Corp., 303 U.S. 545, 549 (1938) (combination not patentable if the elements "produce no new or different function or operation than that theretofore performed or produced by them").

well as to the result achieved by the new device. Thus, in *A&P Tea Co. v. Supermarket Corp.*, 340 U.S. 147, 151-52 (1951), the Court stated: "The conjunction or concert of known elements must contribute something; only when the whole in some way exceeds the sum of its parts is the accumulation of old devices patentable. . . . A patent for a combination which only unites old elements with no change in their respective functions . . . obviously withdraws what already is known into the field of its monopoly and diminishes the resources available to skillful men." Finding that the combination before it was "wanting in any unusual or surprising consequences," and that the old elements which made up the device did not "perform any additional or different function in the combination than they performed out of it," the Supreme Court in *A&P Tea* held the device non-patentable.

Partially in response to the judicially created "negative rules of invention,"[10] Congress amended the patent

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10. The Supreme Court, in Graham v. John Deere Co., 383 U.S. 1, 15 & n.7 (1966), acknowledged that Congress, in enacting §103, was motivated in part by a desire to overrule the controversial "flash of creative genius" test which the Court had espoused in Cuno Corp. v. Automatic Devices Corp., 314 U.S. 84, 91 (1941) — a "negative rule" which some lower courts had interpreted as mandating investigation of the inventor's state of mind. More generally, it seems clear that Congress wished to unify and simplify the multifarious standards that had developed concerning "invention":

> Section 103 states this requirement in the title. It refers to the difference between the subject matter sought to be patented and the prior art, meaning what was known before as described in section 102. If this difference is such that the subject matter as a whole would have been obvious at the time a person skilled in the art, then the subject matter cannot be patented.
>
> That provision paraphrases language which has often been used in decisions of the courts, and the section is added to the statute for uniformity and definiteness. This section should have a stabilizing effect and minimize great departures which have appeared in some cases.

S. Rep. No. 1979, 82d Cong., 2d Sess. 6 (1952); H.R. Rep. No. 1923, 82d Cong., 2d Sess. 7 (1952).

laws in 1952, retaining the requirements of novelty and utility, but adding for the first time a requirement of invention. Congress decided, moreover, to "start fresh semantically and to promote uniformity"[11] by imparting to the invention requirement a new rubric — "non-obviousness." Specifically, Section 103, 35 U.S.C. §103, states that a patent will not issue "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

In *Graham v. John Deere Co.*, 383 U.S. 1 (1966), the Supreme Court established a procedure for determining whether Section 103 is satisfied. While the Court acknowledged that patent validity is a question of law, it also observed that the Section 103 issue "lends itself to several basic factual inquiries:"

> Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art maintained. Against this background, the obviousness or non-obviousness of the subject matter is determined.

Id. at 17. In addition to the three factors to be accorded primary significance, such "secondary considerations" *id.*, as commercial success, long felt but unsolved needs, and failure of other attempts to develop a comparable device, might be relevant as indicia of obviousness, *id.* at 17-18.

Significantly, the Supreme Court in *Graham* seemed to regard Section 103 as abolishing the judicially fashioned "negative rules of inference,"[12] and replacing

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11. Republic Indus. Inc. v. Schlage Lock Co., 592 F.2d 963, 968 (7th Cir. 1979).

12. *See* note 10 *supra*.

them with a unitary inquiry into obviousness. In the *Graham* case itself, the Court examined the conflicting approaches of two circuits, which had applied different "negative rules" to test the patentability of a combination of old elements. The Eighth Circuit, reflecting *Hicks v. Kelsey*, 85 U.S. (18 Wall.) 670, 673 (1874), had required a "new or different result,"[13] while, in an earlier decision, the Fifth Circuit had required merely the production of "an old result in a cheaper and more advantageous way."[14] The Supreme Court, disapproving both standards, directed that courts should inquire solely into whether the improvement in question would have been obvious to one skilled in the art.

In the case at hand, the district court adhered to the *Graham* decision by identifying the scope of the prior art, the differences between the art and the '502 patent, and the relevant level of skill. The court, however, appeared to supplement the *Graham* analysis with the "negative rule" that applied to combination patents before the adoption of Section 103. The court introduced its discussion of Section 103 by observing that "additional aspects of nonobviousness" come into play when a combination patent is at issue. It identified these "additional aspects" as a requirement that the device produce a "synergistic result" in which "the whole in some way exceeds the sum of its parts." The court concluded that the '502 patent could not survive scrutiny under Section 103, inasmuch as "each element of the combination performs in the same manner and with the same result as in the prior art machines."

Rengo maintains that the district court, by imposing a requirement of "synergistic result," revitalized one of the "negative rules of invention" discredited in *Graham*. In so doing, Rengo argues, the court subjected the '502

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13. John Deere Co. v. Graham, 333 F.2d 529, 534 (8th Cir. 1964).

14. Jeoffroy Mfg. v. Graham, 219 F.2d 511, 519 (5th Cir. 1955).

patent to an unduly rigorous standard, and the resulting finding of invalidity cannot stand. We agree with Rengo that *Graham* establishes the standards generally applicable to patents alleged to violate Section 103, and that the district court engrafted onto the *Graham* analysis a "synergism" requirement strongly reminiscent of the pre-1952 "negative rules of invention." While neither Section 103 itself nor the Supreme Court's *Graham* decision appear to contemplate this embellishment, post-*Graham* developments must be understood in order to evaluate its propriety.

B.

Notwithstanding *Graham*, the Supreme Court, in two more recent decisions, has resorted to language which evokes the rule of *Hicks v. Kelsey* and *A&P Tea Co. v. Supermarket Corp.* In *Anderson's-Black Rock Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969), the court struck down a claim that combined a radiant heat burner, a bituminous paving machine, and an asphalt shaper apparatus mounted on the same chassis, each of which was taught by the prior art. The Court observed that *Graham* established the guidelines for assessing obviousness, and, applying this analysis, concluded that "the combination was obvious to one with ordinary skill in the art." *Id.* at 60. But the Court also commented:

> A combination of elements may result in an effect greater than the sum of several effects taken separately. No such synergistic result is argued here. It is, however, fervently argued that the combination filled a long felt want and has enjoyed commercial success. But these matters "without invention will not make patentability."

Id. at 61 (quoting *A&P Tea Co. v. Supermarket Corp.*, 340 U.S. at 153).

Despite the allusion to "synergistic result," we do not understand *Black Rock* to supersede or to supple-

ment *Graham*. To the contrary, the Supreme Court's reference to and application of the *Graham* test constitutes a reaffirmation of that decision. The Court's resort to synergism language is, we believe, best interpreted "merely to note the advent of a phenomenon which may emanate from a combination claim, without any indication by the Court that the phenomenon must be present in every case to satisfy the requirements of Section 103."[15]

In *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273 (1976), the Supreme Court again considered the validity of a combination patent. As in *Black Rock*, the Court reiterated its fidelity to the *Graham* test, *id.* at 289, and, after analyzing the scope of the prior art, concluded that the particular use before it[16] would have been obvious to anyone skilled in the art, *id.* at 282. Again as in *Black Rock*, the Court invoked the rhetoric of synergism, stating that the combination in issue could not "be characterized as synergistic, that is, 'result[ing] in an effect greater than the sum of the several effects taken separately.'" *Id.* (quoting *Anderson's-Black Rock v. Pavement Salvage Co.*, 396 U.S. at 61). The background of the *Sakraida* decision suggests, however, that the Court did not intend to reinstate the "negative rule of invention" formerly applicable to combination patents. The Fifth Circuit in *Sakraida* had held that the invention "[did] achieve a synergistic result," 474 F.2d 167, 173

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15. Republic Indus. Inc. v. Schlage Lock Co., 433 F. Supp. 666, 669-70 (S.D. Ill. 1977), *aff'd*, 592 F.2d 963 (7th Cir. 1979). Other courts have similarly interpreted *Black Rock* as leaving the *Graham* test unaltered. *See, e.g.*, Republic Industries, Inc. v. Schlage Lock Co., 592 F.2d 963, 968-69 (7th Cir. 1979); In re Fiedler, 471 F.2d 640, 645 (C.C.P.A. 1973); Reeves Instrument Corp. v. Beckman Instruments, Inc., 444 F.2d 263, 271 (9th Cir. 1971).

16. The subject matter of the patent in *Sakraida* was a device to remove animal waste from dairy barns. It combined a graded floor, flush troughs, and storage tanks, exploiting gravity to effect an abrupt release of water that would cleanse the barn floor.

(5th Cir. 1973), and the Supreme Court directed its discussion of synergism to this lower court finding, *see* 425 U.S. at 281-82. In light of the Supreme Court's endorsement of *Graham*, we believe its discussion of synergism expresses a rejection of the Fifth Circuit's holding, rather than the institution of an additional precondition to patentability.

In contrast to the district court, we doubt that the Supreme Court's recent decisions impose distinctive barriers to the validity of combination patents.[17] The Supreme Court precedents, we believe, do not resurrect the earlier "negative rules," but suggest instead that *Graham* definitely states the minimum criteria for satisfaction of Section 103. Moreover, we note that our interpretation of *Sakraida* and *Black Rock* is not unique. Although there is a split among the authorities, at least four other federal courts of appeals have, in the wake of *Sakraida*, arrived at a similar analysis of the Supreme Court's precedents.[18]

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17. Decisions from this Court similarly fail to decree a synergism requirement. Most recently, in Sims v. Mack Truck Corp., 608 F.2d 87, 93 (3d Cir. 1979), we explicitly declined to rule on whether synergism is a requirement for a combination patent. Seven years earlier, in Hadco Prods., Inc. v. Walter Kidde & Co., 462 F.2d 1265, 1269-70 (3d Cir. 1972), the Court, citing *A&P* and *Black Rock*, suggested in dicta that a combination of known elements should display a synergistic result. *Hadco Products*, however, involved the validity of a design patent, and we overturned the district court's ruling in favor of the holder on the ground that the court had substituted "subjective visual impressions" for the test of "obviousness to the worker of ordinary skill in the art." The decision did not rest on a finding concerning synergism, and does not purport to adumbrate the legal standards applicable to combination patents.

18. *See* Plastic Container Corp. v. Continental Plastics, 607 F.2d 885, 904-05 (10th Cir. 1979); Champion Spark Plug Co. v. Gyromat Corp., 603 F.2d 361, 372 (2d Cir. 1979); Republic Indus. Inc. v. Schlage Lock Co., 592 F.2d 963, 967-72 (7th Cir. 1979); Nickola v. Peterson, 580 F.2d 898, 912 n.22 (6th Cir. 1978). *See also* Crossan, *Patent Law: Synergism Rejected*, 56 Chi.-Kent L. Rev. 339, 348 (1980) (commending the Seventh Circuit's abandonment of syner-

C.

While *Black Rock* and *Sakraida* do not compel adoption of a synergism requirement, neither do these decisions, by their terms, preclude such a result. Independent of these precedents, sound arguments counsel against incorporating into the patent law a special test for combination patents. Section 103 itself does not discriminate among various types of patents; its requirements, instead, apply to all applications, regardless of their subject matter. This uniformity is not accidental, for Congress, in enacting Section 103, intended to replace the mosaic of "negative rules," many of which could be applied to only a limited range of patents, with a single standard of non-obviousness.[19] It would confound the statutory design to impose on one class of patents a harsher test of patentability than the rest. This concern is particularly relevant to a standard like "synergism," which is, by nature, difficult to formulate and apply. It is worth noting that those courts that construe *Black Rock* and *Sakraida* to embrace a synergism precondition for

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NOTE 18 — *(Continued)*
gism requirement in *Schlage Lock*). Some federal courts of appeal, notably the Fifth Circuit, understand *Sakraida* and *Black Rock* to require evidence of synergism. *See* Whitley v. Road Corp., 624 F.2d 698, 699-700 (5th Cir. 1980); John Zink Co. v. National Airoil Burner Co., 613 F.2d 547, 551 (5th Cir. 1980), while others, including the Third Circuit, have heretofore left the issue open. *See* Smith v. ACME General Corp., 614 F.2d 1086, 1095 (6th Cir. 1980) (recognizing that synergism test suffers from "definitional deficiencies" and "theoretical flaws," but regarding synergism as a "symbolic reminder of what constitutes nonobviousness when a combination patent is at issue"); Palmer v. Orthokinetics, Inc., 611 F.2d 316, 324 n.17 (9th Cir. 1980) (acknowledging *Schlage Lock* as "well-reasoned" but declining to reject synergism); Sims v. Mack Truck Corp., 668 F.2d 87, 93 (3d Cir. 1979) ("we need not rule on the question whether a finding of synergism is a precondition to validity in all [combination patent] cases").

19. *See* S. Rep. No. 1979, *supra* note 10; H. R. Rep. No. 1923, *supra* note 10.

combination patents have not agreed on how the standard should be formulated.[20]

Besides creating inconsistency in the patent laws, the synergism test suffers from several analytical defects. The Seventh Circuit has detailed these problems in *Republic Industries, Inc. v. Schlage Lock Co.*, 592 F.2d 963 (1979), the leading decision rejecting the synergism standard. First, because synergism is linked exclusively with combination patents, the scope of the synergism standard derives from the definition of "combination." As Judge Learned Hand once pointed out, however, no standards can be articulated for delineating a class of "combinations," for every invention is a combination of old elements.

> [T]he defendant argues that the supposed invention is no more than a substitution of materials familiar to the art in the same uses; an aggregation of which each part performs what it did before. We may concede as much arguendo, for the same may be said of every invention. All machines are made up of the same elements; rods, pawls, pitmans, journals, toggles, gears, cams, and the like, all acting their parts as they always do and always must. All compositions are made of the same substances, retaining their fixed chemical properties. But the elements are capable of an infinity of permutations, and the selection of that group which proves serviceable to a given need may require a high degree of originality. It is that act of selection which is the "invention"

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20. *Compare* Reinke Mfg. Co. v. Sidney Mfg. Corp., 594 F.2d 644, 648 (8th Cir. 1979) (synergism depends on "whether the effect is a new effect") *with* Brennan v. Mr. Hanger, Inc., 479 F. Supp. 1215, 1225 (S.D.N.Y. 1979) ("a highly desirable new result not theretofore obvious"), *and with* Burland v. Trippe Mfg. Co., 543 F.2d 588, 592 (7th Cir. 1976) (at least one element must perform a different function or operation than it did previously). *See generally* Note, *Patentability of Mechanical Combinations: A Definition of Synergism*, 57 Tex. L. Rev. 1043 (1979).

> and it must be beyond the capacity of commonplace imagination.

B. G. Corp. v. Walter Kidde & Co., 79 F.2d 20, 21-22 (2d Cir. 1935).[21]

Assuming the definitional hurdles can be overcome, synergism, whether conceptualized as a characteristic of individual parts or of the product they cooperate to produce, can rarely, if ever, exist. In virtually every mechanical patent, the constituent parts will perform their known and expected functions, and the possibility that the elements will function differently in combination than they did separately is correspondingly remote.[22] Moreover, "mechanical elements can do no more than contribute to the combination the mechanical functions of which they are inherently capable;"[23] thus the performance of a combination will equal the sum of the functions of its components, and we will rarely, if ever, find that "the whole in some way exceeds the sum of its parts."[24] If applied consistently, a synergism requirement might well foreclose the validity of all mechanical patents.

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21. *Accord*, Nickola v. Peterson, 580 F.2d 898, 912 n.22 (6th Cir. 1978) ("Because virtually *every* invention is an assembly of old elements," especially stringent standards cannot apply to combination patents "without risk of destroying the patent system"); Reeves Instrument Corp. v. Beckman Instruments, Inc., 444 F.2d 263, 270 n.4 (9th Cir. 1971).

22. *See* Nickola v. Peterson, 580 F.2d 898, 912 n.22 (6th Cir. 1978) ("Unable to create from nothing, man must use old elements, which must perform their normal individual functions."). Assuming that an imaginative inventor might occasionally find a new function for an old component, this discovery might bear on the obviousness or non-obviousness of the combination. We suggest merely that such developments should not be a prerequisite to patentability.

23. Republic Indus., Inc. v. Schlage Lock Co., 592 F.2d 963, 970 (7th Cir. 1979).

24. A&P Tea Co. v. Supermarket Corp., 340 U.S. 147, 152 (1950).

Additionally, we agree with the Seventh Circuit's observation in *Schlage Lock* that the synergism standard contravenes important objectives of patent protection. By looking exclusively to the functioning of the individual components *after* combination, the approach is premised on "the assumption that it is always obvious to take known elements and combine them." 592 F.2d at 971. But the selection of elements may itself be non-obvious and therefore inventive. Focusing on the performance of elements after combination, to the exclusion of the obviousness of making the combination, thus seems inconsistent with Section 103, which establishes as the standard of patentability the non-obviousness of the combination "at the time the invention was made."

D.

Because the synergism requirement is neither mandated by the Supreme Court nor commended by independent considerations, we decline to adopt it as a prerequisite to the validity of a combination patent. Instead, we regard the three-part test of *Graham* as applicable to combination, as well as to other patents: to ascertain the non-obviousness of a patent, a court should look to the prior art, to the differences between the claimed invention and the prior art, and to the level of skill in the industry, with appropriate weight accorded to "secondary considerations." To the extent that the district court deviated from the *Graham* analysis by measuring the '502 patent against the standard of synergism, it committed error. Moreover, our review of the Court's opinion does not persuade us that the error was harmless.

As noted above, the court recited various of the maxims traditionally associated with synergism: the whole must in some way exceed the sum of its parts, and at least some elements of the combination must perform in a novel or unpredictable manner. While a mere refer-

ence to synergistic aphorisms might not prejudice the holder of a patent, we are convinced that the district court, at least to some extent, substituted synergism for the *Graham* analysis. Specifically, it deviated from *Graham* by failing to consider adequately whether the specific combination of elements before it — each, admittedly, performing a known function — was obvious at the time of invention. For example, the court acknowledged that the prior art did not teach the placement of the diverter plate upstream of the cutting and grooving tools. In inferring that the development of a diverter plate located between the rotary shear and slitter-scorer units was not an inventive contribution, the judge merely recited the prior art and then stated that each element of the new combination performs its old function. The court did not explain what made this specific combination of known elements obvious to one skilled in the art. Moreover, its injection of synergism resulted in an additional departure from the *Graham* analysis. In declining to look to "secondary considerations" such as the failure of Rengo's rivals to develop an adequate corrugator, the court properly noted that these factors cannot revive a patent already adjudicated unsatisfactory by Section 103 standards. But in this case, the determination of invalidity that foreclosed secondary considerations rested on the synergism standard. In short, we find that concepts of synergism so permeated the trial court's ruling on patent validity that we cannot sustain that holding.

Occasionally, a reviewing court, when presented with a finding of patent invalidity premised on incorrect legal standards, will proceed to decide the validity issue on its own, without remand to the trial judge.[25] Under

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25. *See, e.g.* Sakraida v. Ag Pro, Inc., 425 U.S. 273 (1976); Republic Indus., Inc. v. Schlage Lock Co., 592 F.2d 963 (7th Cir. 1979). We have observed in the past that the question of patent validity, including a determination of the obviousness of the subject matter of the patent, is a question of law freely reviewable by the

the circumstances of this case, however, we believe the better practice is to allow the district court to reexamine the '502 patent under the *Graham* test. The *Graham* guidelines contemplate a refined comparison of the prior art and the subject of the '502 patent; the district court, having conducted a four day trial, is more familiar with, what is in this case, a complex body of art, and hence better situated than we to construct the detailed analysis which its initial reliance on synergism rendered unnecessary. For example, the district judge, in assessing the placement of the rotary shear and diverter, may wish to consult the expert testimony and other exhibits which the parties submitted to it, but on which it did not previously rely. In addition, the secondary considerations that the court summarily set aside may merit greater weight when it examines the patent without regard to synergistic result. We believe that the district court is the appropriate forum for development of the factual basis on which the legal judgment concerning validity ultimately rests.

IV.

Two issues touching on validity, both of which the district court resolved in favor of Rengo, remain. The first concerns the proper date for ascertaining the state of prior art; the second, which is closely allied, concerns the formal adequacy of Rengo's application for a patent. Although we have already determined that the district court's judgment must be vacated, the resolution of these questions will affect the scope of the inquiry on re-

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appellate court, but that the "clearly erroneous" standard governs the district court's resolution of the factual issues relevant to a Section 103 determination. *See* Systematic Tool & Machine Co. v. Walter Kidde & Co., 555 F.2d 342, 348 (3d Cir. 1977); Minnesota Mining & Mfg. Co. v. Berwick Indus., Inc., 532 F.2d 330, 332 (3d Cir. 1976); Hadco Prods. Inc. v. Walter Kidde & Co., 462 F.2d 1265, 1268 (3d Cir.), *cert. denied*, 409 U.S. 1023 (1972).

mand. Accordingly, we find it appropriate to address them at this time.

A.

Although the statute indicates that the obviousness of an invention should be evaluated in light of the art which existed "at the time the invention was made," in practice the reference point generally has been understood as the date the inventor filed an application with the Patent Office. *Eltra Corp. v. Basic Inc.*, 599 F.2d 745, 752 n.10 (6th Cir. 1979); *U. S. Expansion Bolt Co. v. Jordan Indus., Inc.*, 488 F.2d 566, 568 n.3 (3d Cir. 1973). Section 119 establishes an exception to this general rule, however. If an inventor applies for a patent in a foreign country, and files an application in the United States within one year, the American application "shall have the same effect as the same application would have if filed in this country on the date on which the application for patent for the same invention was first filed in such foreign country." Consequently, an American application which falls within Section 119 will be judged by reference to the state of the art as it existed on the date of the foreign application, rather than on the later date of the domestic filing. The difference is potentially crucial in the present case. During the interim between the filing of applications in Japan and the United States, the Patent Office granted Patent No. 3,831,929 (the "Hellmer patent"), which discloses all the components of the Rengo patent, and in the same arrangement. Rengo concedes that if the Hellmer patent is considered prior art, the Tokuno corrugator does not cross the non-obviousness threshold, and the '502 patent must be adjudged invalid.

The parties agree that a patent application will receive the priority of Section 119 only if the foreign application satisfies the requirements of Section 112. Relevant to this case is the so-called "enablement" provision

of Section 112: a patent application must "contain a written description of the invention, and of the manner and process of making and using it, . . . as to enable any person skilled in the art to which it pertains . . . to make and use the same." Although the parties do not contest the point, this Court has never considered whether Section 119 incorporates the requirements of Section 112. Consequently, a brief examination of this issue must precede resolution of whether Rengo is entitled to the filing date of the Japanese application.

In the leading opinion on this subject, the Court of Custom and Patent Appeals decided that a foreign application must comply with the enablement provisions of Section 112 if the inventor is to enjoy the priority benefits of Section 119. *Yasuko Kawai v. Metlesics*, 480 F.2d 880 (C.C.P.A. 1973). The court recognized that the language of Section 119 is not so unambiguous as to foreclose the contrary result. Because the statute provides that the American application, if preceded by a foreign filing "shall have the same effect as the same application would have if filed in this country" on the date of the earlier application, a question arises concerning the referent of the phrase "same application." If it refers to the United States application, then the American filing would be treated as though filed on the date of the foreign application, and only the American application need satisfy the requirements of Section 112. But if "same application" refers to the foreign claim, the foreign application must be examined for compliance with Section 112 before it is given an effective United States filing date.

Although resort to the statutory language is unavailing, the Section's relationship with the body of American patent law assists the construction of Section 119. Section 104, 35 U.S.C. §104, provides generally that an inventor cannot establish a date of invention by proving acts done in a foreign country, unless he falls

within Section 119.[26] With this one exception, the filing of the American application must be understood as a simultaneous conception and reduction to practice of the invention. Given the general policy embodied in Section 104, the Court in *Kawai* reasoned that the Section 119 exception "can aptly be described as a *right to prove* a date of invention no earlier than the date of the foreign filing." 480 F.2d at 885. The foreign application, then, can be regarded as a reduction to practice, just as a domestic filing can be so regarded. Similarity in treatment is justified, however, only if similar safeguards are imposed: just as an American application will be regarded as a reduction to practice only if it describes the invention with the particularity required by Section 112, so must a foreign application satisfy this standard. To harmonize Section 119 with the general policy expressed in Section 104 requires that foreign applications be accorded priority only if they meet the enablement requirements of Section 112.

We find the *Kawai* syllogism persuasive.[27] If a foreign application did not have to meet the requirements

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26. Section 104 provides:

> In proceedings in the Patent Office and in the courts, an applicant for a patent, or a patentee, may not establish a date of invention by reference to knowledge or use thereof, or other activity with respect thereto, in a foreign country, except as provided in sections 119 and 365 of this title. Where an invention was made by a person, civil or military, while domiciled in the United States and serving in a foreign country in connection with operations by or on behalf of the United States, he shall be entitled to the same rights of priority with respect to such invention as if the same had been made in the United States.

27. Apparently, no other federal court of appeals has considered whether Section 119 incorporates the Section 112 enablement standard. We note, however, that the Court of Customs and Patent Appeals has not deviated from its holding in *Kawai*. *See, e.g.*, Tabuchi v. Nubel, 559 F.2d 1183, 1184-89 (C.C.P.A. 1977); In re Wertheim, 541 F.2d 257, 261 (C.C.P.A. 1976).

of American law, an inventor could file a foreign application for a promising but not yet perfected device, have one year to refine it before filing in the United States, and still avail himself of the priority grant of Section 119. We agree with the Court of Customs and Patent Appeals that the law should not be construed to tolerate this result.

Applied to the present case, the *Kawai* rule directs that Rengo may assert the Japanese filing date, and thereby exclude the Hellmer patent from the prior art, only if the Japanese application meets the disclosure standards of Section 112. The Japanese application is identical to the American in all relevant respects save one: it does not disclose circuit diagrams, included in the American applications, which explain how the action of the rotary shear is interrelated with the movement of the web diverter. Mr. Tokuno did not invent the specific circuitry disclosed in the '502 patent, and did not claim it as part of the invention.

In considering the adequacy under Section 112 of the Japanese filing, the district court noted that the enabling requirement is directed, in the terms of the statute, to a "person skilled in the art," and demands that the inventor describe the device in terms sufficient to enable one skilled in the art to make and use it. There is consensus in the present case that the appropriate level of skill in the art is very high, and is characterized by a person with an engineering degree who is thoroughly familiar with the design, construction, and operation of corrugating equipment, and with the associated pneumatic, hydraulic, and electrical systems. After evaluating the expert testimony, the district judge concluded that the disclosures contained in the foreign applications would allow a person with the requisite skill "to make and use [the] invention without engaging in extensive experimentation and without requiring any inventive effort beyond the teachings of the Japanese documents."

Molins contends that the district court misconstrued the disclosure requirements. According to Molins, a court may rely on skill in the art to *interpret* what is disclosed in the application, but the court may not speculate about what a skilled person could *infer* from what is disclosed. Molins does not dispute that a person sufficiently skilled could, after examining the Japanese application, infer that a particular type circuitry would be required for operation of the corrugator. Rather, it maintains that the failure to disclose, without more, precludes compliance with Section 112, thereby removing Rengo's American application from the protective harbor of Section 119.

We find the Molins' interpretation of Section 112 unduly parsimonious. It is axiomatic that no description, however detailed, is "complete" in a rigorous sense. Every description will rely to some extent on the reader's knowledge of the terms, concepts, and depictions it embodies. Thus, an understanding of any description will involve some measure of inference. The Court of Customs and Patent Appeals recognized this principle in *In re Wiggins*, 488 F.2d 538, 543 (C.C.P.A. 1973), when it said: "Every patent application and reference relies to some extent upon knowledge of persons skilled in the art to complement that disclosed in order that it be 'enabling' within the meaning of §112." *See also In re Bode*, 550 F.2d 656 (C.C.P.A. 1977) ("One skilled in the art would be expected to have sufficient basic knowledge to construct such means, the structure of which would be simple."). As *Bode* makes clear, skill in the art can be relied upon to supplement that which is disclosed as well as to interpret what is written.

The *Bode* interpretation of the enabling requirement has deep historical roots. Nearly one century ago, the Supreme Court, in *Loom Co. v. Higgins*, 105 U.S. 580 585-86 (1882), similarly construed the predecessor to Section 112:

> If a mechanical engineer invents an improvement on any of the appendages of a steam-engine, he is not obliged, in order to make himself understood, to describe the engine, nor the particular appendage to which the improvement refers, nor its mode of connection with the principal machine. These are already familiar to others skilled in that kind of machinery. He may begin at the point where his invention begins, and describe what he has made that is new, and what it replaces of the old. That which is common and well known is as if it were written out in the patent and delineated in the drawings.

More recently other courts have expressed similar views. In *Trio Process Corp. v. L. Goldstein's Sons, Inc.*, 461 F.2d 66, 74 (3d Cir.), *cert. denied*, 409 U.S. 997 (1972), for example, we observed that "patent specifications need not be so detailed as production specifications," and intimated that requirements of detail are less rigorous with respect to items that are not "a critical part of the invention," *id.* at 74 n.24.

Judged by these principles, we cannot say that the district court applied an incorrect standard of law. The circuit diagrams which Tokuno omitted from the Japanese application were not of his invention. Although the corrugator could not operate without circuitry, *Bode* and *Higgins* indicate that a patent need not specify those items which are not part of the invention, and which a person skilled in the art could be expected to understand. The district court, therefore, was correct in declining to find the Japanese documents inadequate for failing to disclose the circuit diagrams, and in evaluating them instead to determine whether a person with the requisite skill could infer from them a method for constructing the machine. Moreover, we cannot say that the district court clearly erred in finding, based on first-hand

observation of the evidence and testimony,[28] that a person with the requisite skill who applied that knowledge to the apparatus disclosed in the Japanese application could have practiced the patent. The high level of sophistication which characterizes the person with skill in the art is thus, in this case, a double-edged sword. In the context of the Section 103 inquiry, the court might infer that a person with the requisite skill would find "obvious" many innovations which the layman would never imagine. But in the context of enablement, the knowledge of the skillful person, whose characteristics were enumerated in this lawsuit by Molins itself, facilitates a conclusion that the Japanese disclosure satisfies the American requirements. We will disturb neither the district court's holding that the Japanese application satisfies the requirements of Section 112, nor the entailed holding, that Rengo is entitled, under Section 119, to the priority date of the Japanese filing.

B.

Virtually inseparable from the enablement provisions are two additional prerequisites embodied in Section 112. The first paragraph of the Section states that "the specification shall contain a written description of the invention," while the second paragraph stipulates that "the specification shall conclude with one or more

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28. Before the district court and again on appeal, Molins relied principally on the testimony of inventor Tokuno, that a manufacturer would have to install some type of electrical circuitry. The district court properly regarded this testimony as having little relevance to the question of enablement. Read in context, Tokuno's remarks express no opinion on the dispositive question whether the Japanese disclosure was adequate to enable one with the requisite skill in the art to make and use the patented apparatus. Tokuno's testimony does not even suggest that a manufacturer would find the specifications deficient — and a manufacturer need not possess the sophisticated knowledge of one skilled in the art, as that term has been defined for purposes of this case.

claims particularly pointing out and distinctly claiming the subject matter which the applicant reports as his invention." Molins asserts that the '502 patent falls short of both these standards, known respectively as the "description" and "definiteness" requirements. Molins bases its argument on claim 1 of the '502 patent, which recites, in pertinent part, a "means associated with the feeding guide plate for aligning said feeding guide plate with the lower guide plate, with the intermediate guide plate and with the upper guide plate." This claim, Molins contends, requires a "means" — i.e., a diverting mechanism — that moves between three different positions. The specifications, however, disclose that the diverter moves between only two positions, one aligned with the upper flow path and the other with the lower floor path. Molins urges that this variance is fatal to Rengo's asserted compliance with the description and definiteness elements of Section 112.

The requirements of adequate description and definite claim, though closely intertwined, are analytically distinct. The description requirement is contained in the same sentence as the enablement provision discussed above,[29] and both direct inquiry to the person with ordinary skill in the art. The Court of Customs and Patent Appeals explained the scope of the requirement in *Application of Smith*, 481 F.2d 910, 914 (C.C.P.A. 1973):

> Compliance with the first paragraph of §112 is adjudged from the perspective of the person skilled in the relevant art. This court has held that claimed

29. The Court of Customs and Patent Appeals has held that the description of the invention requirement is separate and distinct from the enablement requirement, although both derive from the same sentence in Section 112. *See* In re Barker, 559 F.2d 588, 591 (C.C.P.A. 1977), ("A specification may contain a disclosure that is sufficient to enable one skilled in the art to make and use the invention and yet fail to comply with the description of the invention requirement."), *cert. denied*, 434 U.S. 1064 (1978); *accord*, In re Armbruster, 512 F.2d 676, 677 (C.C.P.A. 1975).

> subject matter need not be described *in haec verba* in the specification in order for that specification to satisfy the description requirement . . . although where there is exact correspondence between the claim language and original specification disclosure, the descripion requirement would normally be satisfied. . . . The specification as originally filed must convey clearly to those skilled in the art the information that the applicant has invented the specific subject matter later claimed. . . . When the original specification accomplishes that, regardless of *how* it accomplishes it, the essential goal of the description requirement is realized.

The purpose of the description requirement is "to buttress the original filing date of the application as the prima facie date of invention,"[30] and the requirement typically is in issue when an applicant adds a claim after the original date of filing. Thus the Court in *Smith* observed: "Where the claim is an original claim, the underlying concept of insuring disclosure as of the filing date is satisfied, and the description requirement has likewise been held to be satisfied." 481 F.2d at 914.

Description and enablement apply to specifications; by contrast, definiteness applies to claims. Definiteness means that "the language of the claims must clearly set forth the area over which the applicant seeks exclusive rights."[31] The requirement essentially demands precision in the language of the claim, rather than adequacy of disclosure or description. Thus if the specifications are not commensurate with the subject matter encompassed by a claim, the claim may still be *definite* within the meaning of Section 112, although the specifications may not adequately describe the invention or enable one

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30. 2 D. Chisum, Patents §7.04, at 7-51 (1981).
31. *Id.* §8.03[2], at 8-20.

skilled in the art to reproduce it.[32] The definiteness requirement is more than a linguistic quibble, however. Its purpose is to demarcate the boundaries of the purported invention, in order to provide notice to others of the limits "beyond which experimentation and invention are undertaken at the risk of infringement."[33] Thus, there is a subtle relationship between the policies underlying the description and definiteness requirements, as the two standards, while complementary, approach a similar problem from different directions. Adequate description of the invention guards against the inventor's overreaching by insisting that he recount his invention in such detail that his future claims can be determined to be encompassed within his original creation. The definiteness requirement shapes the future conduct of persons other than the inventor, by insisting that they receive notice of the scope of the patented device.

In the present case, the definiteness of claim requirement presents no serious barrier to patent validity. The '502 claim, which recites a means for aligning the feeder guide with the upper, middle, and lower flow paths, adequately notifies potential infringers of the scope and function of the claimed invention. Moreover, a relaxed standard of definiteness applies to combination patents. The final paragraph of Section 112 states:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material or acts described in the specification and equivalents.

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32. *See, e.g.*, In re Barkowski, 422 F.2d 904, 909 (C.C.P.A. 1970).

33. Norton Co. v. Bendix Corp., 449 F.2d 553, 555 (2d Cir. 1971); *see* Eli Lilly & Co. v. Premo Pharmaceutical Labs., 630 F.2d 120, 132 (3d Cir. 1980).

The recitation in claim 1 of a "means" for aligning the feeding guide appears to comply with the standards of Section 112. While assertion of a "means," without further specification, is admittedly somewhat nebulous, Section 112 contemplates that a reference to the "means" shall be understood, in connection with a combination patent, to refer to a known method for performing the stated function identified in the specification. There remains the question whether the specifications correspond to the functions claimed, but as noted above, a lack of congruence will bear on disclosure, rather than on definiteness. Like the district court, we conclude that claim 1 of the '502 patent satisfies the definiteness criterion of Section 112.

We also conclude that the specifications adequately describe the claimed invention. Molins emphasizes the asserted disparity between the recital of claim 1 and the specifications: while claim 1 recites a feeding plate that diverts the movement of the three-ply web and that can be aligned with three flow paths, the specifications describe a diverter that can be aligned with only two flow paths. We think that Molins has adopted an unnecessarily restrictive interpretation of claim 1. The patent claims a "means" for aligning the feeding plate with all three flow paths, but does not indicate that the feeder plate itself must move to each of the three positions. The specifications describe a system for aligning the plate with the middle flow path, even though there is no middle position on the feeding plate itself: the plate moves to the upper position, and a different mechanism, acting upon it, aligns it with the intermediate flow path. This system describes a "means" for aligning the feeder with all three flow paths, thereby removing the ground on which Molins objects to the adequacy of the description of the invention. *See United States v. Adams*, 383 U.S. 39, 49 (1966).

V.

After finding the '502 patent invalid, the district court, mindful of recommendations we have made in the past,[34] proceeded to make findings on infringement. The court found the accused machine equivalent in means, operation, and result to the Rengo corrugator, and further ruled that file-wrapper estoppel did not bar the plaintiffs from objecting to the Molins apparatus.[35] The court accordingly held that the '502 patent, if valid, was infringed.

In light of our disposition of the invalidity issue, we decline to review the district court's rulings on infringement. As indicated above, the court's invalidation of the '502 patent must be vacated, but we will remand the case for reevaluation of the patent under the *Graham* guidelines. If the district court reinstates its ruling that the patent is invalid, and if this decision is upheld on appeal, then there will be no occasion to consider infringement. By declining to review the infringement issue now, we may thus avoid unnecessary resolution of a difficult and complex question. On the other hand, if the district court on remand upholds the '502 patent, it will presumably, absent some intervening development, adhere to its decision on infringement. Then, on appeal, the infringement issue will properly be before us. But on the second appeal, if there is one, the infringement

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34. *See* Frank W. Egan & Co. v. Modern Plastic Mach. Corp., 387 F.2d 319, 320 (3d Cir.).

35. File-wrapper estoppel precludes a patent owner from broadening the interpretation of a claim to include subject matter surrendered during the course of application proceedings with the Patent Office. *See generally* D. Chisum, *supra* note 30, §18.05. Molins argues that Rengo had amended its claim in a way that exluded the Molins apparatus, and that Rengo was therefore estopped fom alleging infringement. On the record before us, we cannot say that the district court was clearly in error in finding that Rengo had not in its amendment disclaimed a two-flow-path machine such as the Molins device.

question will be no different than it is now, and no harm will accrue to the parties by our deferring consideration of the issue until that time when its resolution is necessary to dispose of the case. Moreover, deferral of the issue to a later time will delay final resolution of the dispute only on the assumption that Molins will decline to appeal a district court holding that the '502 patent is valid. We have no basis for making this assumption. We believe prudence counsels in favor of declining to consider a question whose resolution either will prove unnecessary to a final disposition, or, if necessary, will inevitably be before us again, none the worse for the delay.

VI.

The judgment of the district court will be vacated, and the case remanded for further proceedings in accordance with this opinion.

DUMBAULD, *Senior District Judge*, concurring.

I concur with the disposition of this case by the majority opinion, although I should have been willing to affirm *simpliciter* and approve the District Court's determination on the crucial issue of validity *vel non* of the patent, as well as with respect to the incidental issues of jurisdiction, entitlement to the date of foreign filing, adequacy of description and claim, and file-wrapper estoppel.

I believe that the District Court in substance did determine the issue of validity in accordance with the criteria of *Graham v. John Deere*, 383 U.S. 1, 17 (1966), and that its references to synergism were merely a rhetorical recital of "synergistic aphorisms," a ceremonial genuflection in recognition and reflection of the existence of language in opinions of this Court and the Supreme

Court where the verbiage of synergism is used.[1] The maxim *utile per inutile non vitiatur* might appropriately be applied here.

Moreover, I should have been content to continue the present ambiguous stance with respect to synergism described in note 17 of the majority opinion, rather than to stand up and be counted in the current synergism controversy.[2]

Perhaps the word synergism should be discarded (except for its original meaning with respect to the interaction of chemicals or drugs, and for its use as a fashionable fad in television commercials, and for its theological and scriptural overtones).[3] But abandoning the verbal trappings and "rhetoric of synergism" must not cause courts to overlook the importance of the requirement of novelty and invention, long required by the patent statutes and the Constitution.

As pointed out in *John Deere* itself, Congress may not "enlarge the patent monopoly without regard to the innovation, advancement or social benefit gained thereby. Moreover, Congress may not authorize the issuance of patents whose effects are to remove existent knowledge from the public domain, or to restrict free access to materials already available. Innovation, advancement, and things which add to the sum of useful knowledge are inherent requisites in a patent system which by constitutional command must 'promote the Progress of . . .

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1. *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 281-83 (1976); *Anderson's-Black Rock v. Pavement Salvage Co.*, 396 U.S. 57, 60-62 (1969); *Hadco Products Inc. v. Wolter Kidde & Co.*, 462 F.2d 1265, 1269-70 (C. A. 3, 1972); *Sims v. Mack Truck Corp.*, 608 F.2d 87, 89-93 (C. A. 3, 1979).

2. The conflicting authorities are listed in note 18 of the majority opinion. *See also* Kathleen Marie Fenton, "Combination Patents and Synergism," 37 Washington & Lee L. Rev. 1206 (1980).

3. *See* Romans 8:28.

useful Arts.' This is the *standard* expressed in the Constitution and it may not be ignored." 383 U.S. at 6.

Similarly, this Court has said: "Thus, the courts, in determining obviousness in a combination patent, must undertake the tripartite *Graham* inquiry without losing sight of the necessity to determine whether the device performs its function in an innovative fashion." 608 F.2d at 91.

It must never be forgotten that the power given to Congress by Art. I, sec. 8, cl. 8 of the Constitution is "*To promote the Progress of Science* and useful Arts, by securing for limited Times to Authors and *Inventors* the exclusive Right to their respective Writings and *Discoveries*." [Italics supplied] The primary policy of the patent laws is to promote invention for the benefit of the public. The private gain enjoyed by the patentee is secondary; the "exclusive Right" conferred by the patent monopoly is merely the means of accomplishing the intended result of advancing the growth of science by adding to the sum of human knowledge. A patent can not be sustained which would withdraw or subtract from what is already known and practiced. *Borden Co. v. Clearfield Cheese Co.*, 244 F. Supp. 366, 368 (W.D. Pa. 1965). To fence in by a newly created monopoly elements previously available to the public (by aggregating them in a combination patent without any inventive innovation) would be contrary to public policy and fundamental principles of patent law.

To emphasize the importance of these constitutional aspects of our patent system, whether or not they are clothed in "the rhetoric of synergism," it seemed proper to dwell upon them specifically in this

concurring opinion when joining in the judgment of the Court.

A True Copy:

Teste:

Clerk of the United States Court of Appeals
for the Third Circuit

UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY
CIVIL ACTION NO. 78-2000

RENGO CO., LTD. and SIMON CONTAINER MACHINERY LTD., Plaintiffs,	:	
v.	:	OPINION
MOLINS MACHINE CO., INC., Defendant,	:	

Appearances:

Pitney, Hardin & Kipp, Esqs.
BY: Robert L. Hollingshead, Esq.

and

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and

Seidel, Gonda, Goldhammer & Panitch, Esqs.
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and

Michael P. Abbott, Esq.
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Attorneys for Defendant.

MEANOR, *District Judge.*

This is an action arising under the patent laws of the United States, more particularly 35 U.S.C. §§271 and 281, for infringement of claims 1 and 24 of United States Patent No. 3,831,502 (" '502 patent") issued on August 27, 1974 to plaintiff Rengo Co., Ltd. ("Rengo")

as assignee of the named inventor, Masateru Tokuno.[1] Defendant denies infringement and seeks a determination that the patent in suit is invalid.[2] In addition, defendant contends that the '502 patent is unenforceable due to patent misuse, and seeks by way of counterclaim a declaratory judgment that plaintiffs have violated the antitrust laws of the United States.

The case was tried before the court for four days between January 24, and January 30, 1980, following

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1. Masateru Tokuno, the inventor named in the patent in suit, is the Senior Managing Director of plaintiff Rengo (Pre-Trial Order, Uncontested Fact ("UF") 11). Rengo, a Japanese corporation, is engaged in the business of manufacturing corrugated paperboard (UF 1, 8). Plaintiff Simon Container Machinery Ltd. ("Simon"), a British corporation with offices in Stockport, Cheshire, England, manufacturers equipment used in the production of corrugated paperboard. Simon's activities in the United States are conducted through its United States subsidiary, Simon Container Machine Corp., Inc. (UF 2, 9). Defendant Molins Machine Co., Inc. ("Molins") is a New York corporation which, through its Langston Division ("Langston"), has a regular and established place of business in Cherry Hill, New Jersey. The allegations of infringement are directed to the activities of defendant's Langston Division. Langston is engaged in the business of manufacturing and selling machinery used in the production of corrugated paperboard. (UF 3, 10)

By agreement dated October 29, 1976, Simon became the exclusive licensee under the '502 patent and United States Patent No. 3,882,765, issued to Rengo on May 13, 1975 as assignee of the named inventor, Masateru Tokuno. Under this agreement, Rengo granted to Simon the exclusive right to manufacture and sell the slitter-scorer apparatus forming the subject matter of the patents, and agreed to furnish Simon with technical data and other "know-how" relating to the manufacture, installation and operation of the equipment. The agreement requires Simon to pay a royalty to Rengo on the net selling price of all slitter-scorer apparatus, spare parts, repair parts and replacement parts manufactured and sold by Simon or its sublicensees (P-7; *see* UF 5, 6; tr. at 119-122).

2. Defendant asserts two grounds of invalidity: obviousness under 35 U.S.C. §103, and indefiniteness under 35 U.S.C. §112.

Defendant also challenges the court's jurisdiction with respect to plaintiffs' patent infringement claim.

which the parties submitted post-trial briefs and proposed findings of fact and conclusions of law. The opinion which follows constitutes this court's findings and conclusions pursuant to Fed.R.Civ.P. 52(a).

The patented apparatus comprises a combination of elements forming a portion of a machine for manufacturing corrugated paperboard, the material from which the familiar corrugated box is made. (*See* UF 13.) Such a machine—called a corrugator—is composed of a group of integrated components arranged in the following sequence:

1. single facer machine
2. bridge
3. double facer machine
4. rotary shear
5. slitter-scorer
6. cut-off machine
7. stacker or sheet delivery machine

(*See* UF 14.) The '502 patent is directed to items 4 through 6 above (*Id.*)

Stated with brief over-simplification, a corrugator works in the following manner: a web of paper is corrugated (*i.e.*, fluted) and the flutes of one surface of the corrugated medium are bonded to a flat web of single-ply paper by gluing the tips of the flutes to the flat web surface. This process is accomplished in the single facer. The resulting flexible web is then passed along an overhead bridge to the double facer, where the tips of the flutes on the exposed surface of the corrugated medium are glued to the surface of a second flat web of single-ply paper. Thereafter, the paperboard is passed over an elongated bed containing heating elements where the glue is set and dried.
(Tr. at 40-41)[3]

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3. Conventional corrugating equipment can produce corrugated paperboard composed of various layers of corrugated medium and flat web liner. *See Novelart Manufacturing Co. v. Carlin Container Corp.*, 363 F. Supp. 58, 62 & n. 2 (D.N.J. 1973).

Following the fabrication of the corrugated paperboard at the "wet end" of the corrugator, the product is passed as a continuous web through a series of machines which slit the web into a plurality of longitudinal sections of selected width,[4] score the board,[5] and cut the bands transversely[6] to form box blanks which, when folded along the crease lines formed by the scoring tools, will yield corrugated boxes of the dimension required by the customer's order. (Tr. at 42-46)

Because of the variety in the configuration and size of corrugated boxes, it is frequently necessary to change the slitting and scoring pattern (termed an "order

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4. In order to reduce waste and maximize the amount of product which may be obtained from a given width of board, the corrugated paperboard web—which may be as wide as eight feet as it leaves the double facer—is passed through an apparatus called a slitter-scorer, where the web is divided along the running direction of the board into two or more bands of predetermined width, and where scoring tools form longitudinal creases in each of these strips to facilitate the subsequent erection of the boxes. (Tr. at 42-44; UF 15) The bands are then guided to two or more transverse cut-off knives which cut the bands into box blanks of predetermined length. *See* note 6 *infra*.

The slitting operation is performed in the slitter-scorer by passing the web between a pair, or a plurality of pairs, of intermeshing rotary knives which are similarly mounted on similar parallel contra-rotation shafts. Usually a slitter-scorer unit comprises two pairs of vertically aligned shafts, one pair carrying the set of intermeshing rotary knives and the other pair carrying the interrelated grooving or scoring rolls. (UF 17)

5. The grooving or scoring is performed in the slitter-scorer by passing the web between a pair, or a plurality of pairs, of interrelated scoring rolls which are mounted in an axially adjustable manner on positively driven parallel contra-rotation shafts whose axes are in a common vertical plane and parallel to the surface of the web and at right angles to the direction in which the web is moving. (UF 16)

6. After the web passes through the slitter-scorer it is delivered to a cut-off machine, where the longitudinal bands are cut into box blanks of predetermined length. These blanks are then guided to the stacker or sheet delivery machine where they are prepared for shipment to the manufacturer's customer. (*See* UF 15; tr. at 43)

change") to produce blanks of different widths than in the previous run or with score lines differently spaced. (Tr. at 46-47; UF 18) In corrugators equipped with conventional slitting and scoring apparatus,[7] when the requirements of a customer order necessitates a change in the pattern of slitting and scoring, a transverse cut is made in the paperboard web by a rotary shear located upstream of the slitter-scorer, the double facer being stopped or markedly slowed down to hold back the forward feed of the web behind the point of severance. (Tr. at 48-58) The old order is completed by passing the portion of the web downstream of the transverse cut through the slitting and scoring rolls then in operation. The new order is initiated by delivering the portion of the web behind the point of severance to a set of slitting and scoring rolls arranged in the desired new pattern. (UF 20; *see* note 7 *supra*.)

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7. It has long been the practice to provide the slitting and scoring apparatus with two or more slitter-scorer units so arranged that while one unit is in operation during a production run, the other units are idle and the slitting and scoring tools are accessible for adjustment to the positions desired for the next run. In one such arrangement, three slitting and scoring stations are positioned radially around a horizontal shaft running perpendicular to the path of the paperboard web. During an order change, the triplex unit is rotated, bringing the set of slitters and scorers which has been adjusted for the new run into the operative position. At the same time, the unit which had been in operation during the previous run moves from an active to an idle position. (Tr. at 48-63)

With such machines, the movement of the slitting and scoring units between the operative and idle positions requires that parts of the apparatus travel across the path of the paperboard web. (Tr. at 55-57) Therefore, it has been necessary to create a gap in the web through which the slitting and scoring units could travel during the shifting operation. This is accomplished by severing the web transversely upstream of the slitter-scorer and slowing the forward feed of the web behind the point of severance. (Tr. at 48-63)

In older corrugators equipped with a single slitter-scorer unit, the forward feed of the web is stopped completely while the slitting and scoring tools are manually adjusted to the positions required by the new customer order. (Tr. at 86)

Slowdown or stoppage of the corrugator to effect an order change has the undesirable consequence of decreasing the overall production rate of the machine. (UF 22) In addition, a reduction in the speed at which the paperboard web is advanced through the double facer causes the product to be exposed to excessive heat in the glue drying zone of the apparatus, with the result that there may be warpage or other deterioration of the board at the beginning of the new run. (UF 22; tr. at 59-60)

A. The Patent In Suit

The apparatus forming the subject matter of the patent in suit was designed to improve the production efficiency of conventional corrugators and eliminate deterioration of the paperboard by performing the slitting and scoring operation without suspending or reducing the running speed of the web during an order change.[8] The patented apparatus comprises a combination of what plaintiffs concede is a conventional rotary shear (Tr. at 153, 533-534)[9] located upstream of two vertically

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8. In 1971, dissatisfied with the undesirable features of conventional slitting and scoring equipment, Rengo's Senior Managing Director Masateru Tokuno requested his supplier, as well as his engineering staff, to develop a slitter-scorer capable of achieving an order change without web slowdown and without paper waste. (1/17/80 Tokuno Dep. at 15-16) When they failed to do so, he set about to solve these problems himself and on his instructions, a machine corresponding to figure 21 of the patent in suit was built by one of Rengo's suppliers and installed at a Rengo facility in Japan (*Id.* at 16-20). Not satisfied with the performance of this equipment, Tokuno redesigned the component elements and machines embodying the patented apparatus were installed at two Rengo plants in 1972. (*Id.* at 21, 43)

An order change which may be effected without slowdown or stoppage of the corrugator is termed an "instant order change." (UF 31; 1/17/80 Tokuno Dep. at 22; *see* tr. at 63-64)

9. Plaintiffs' shear consists of a pair of vertically disposed rolls arranged perpendicularly to the running direction of the paperboard web and geared to rotate in opposite directions. (Tr. at 151) Extend-

disposed slitter-scorer units, neither of which embody any novel features not known in the industry at the time of the filing of the patent application. (Tr. at 90-91)[10] Included within the combination of elements is a movable feeding plate[11] (P-1, fig. 12, element 54) extending from the exit of the rotary shear which can selectively feed the web to one of the following:

> (a) an upper path (52) defined by elements 521, 522 and 523 leading to the upper slitter-scorer unit;
>
> (b) an intermediate path (51) defined by elements 511 and 512 for directing the web to plate 46 located between the upper and lower slitter-scorer stations (*see* P-1, fig. 1);[12] or
>
> (c) a lower path (53) defined by elements 531, 532 and 533 leading to the lower slitter-scorer unit.

Note 9 — *(Continued)*
ing from the circumferential surface of the upper roll is a single cutting edge (P-1, fig. 2, element 141) The lower roll is provided with a strip of material — such as urethane rubber — for receiving the cutting edge and against which the upper blade can operate (P-1, fig. 2, element 151; *see id.* at col. 3, l. 10-15). During the cutting operation, the rolls rotate, the upper roll descends and a single transverse cut is made in the paperboard web. (Tr. at 80-83, 275) The upper roll then returns to its original position above the board line, and the shafts stop rotating. (*Id.*)

10. All claims of the patent in suit are combination claims. None of the claims is directed to a slitter-scorer device per se. (UF 40; *see* tr. at 536)

11. *See* D-46.

12. Corrugators may be set up to produce "mill run board"; that is, corrugated paperboard manufactured at the wet end of the corrugator and run through the dry end of the machine without being slit or scored. The web is cut transversely into blanks of predetermined length, and the sheets are sold to small plants which perform the cutting and grooving operation and convert the blanks into boxes. (Tr. at 73-74,76)

In conventional corrugating equipment, mill run board is produced by moving the slitting and scoring tools to one side of the

(UF 37) An order change is effected by making a single transverse cut in the web at the rotary shear and instantaneously diverting the leading edge of the severed web to the slitter-scorer not previously in use. (UF 31; tr. at 65)[13]

Thus, put most elementarily, in corrugators equipped with conventional slitting and scoring apparatus, the paperboard web travels along a single pathway or board line. During an order change, the new slitter-scorer station is moved into the path of the board to engage the leading edge of the severed web. (*See* note 7

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shaft and running the board over the bare cylinders of the slitter-scorer unit. Alternatively, the entire slitter-scorer station can be moved out of the path of the web. (*See* tr. at 645-646; *see also id.* at 75, 156.)

In the apparatus disclosed in the patent in suit, mill run board may be produced either in the conventional manner (*i.e.*, by moving the operative heads to the side of the shaft and running the board through the slitter-scorer unit) or by routing the web through an intermediate zone located between the vertically arranged slitter-scorer units. (Tr. at 84-85) The latter operation is accomplished by actuating air cylinder 542 so that piston rod 5421 is projected and feeding plate 54 is thereby moved to a position where it extends obliquely upwards from the exit of the rotary shear. Simultaneous with this action, piston rod 5241 of air cylinder 524 is retracted with the result that guide plate 523 is moved to the position designated as "U1" on defendant's exhibit 46 (D-46). As the paperboard web leaves the rotary shear, it passes over feeding plate 54 and is deflected off the lower surface of guide plate 523 (or falls by its own weight) onto intermediate guide table 511. (Tr. at 154, 501-502) Thereafter, the web travels along plate 46 through a pathway located between the slitter-scorer units. (*See* D-45; *see also* P-96 at 14-17.)

13. The tools of the second slitter-scorer were adjusted for the new order during the previous run. (*See* UF 30.)

Extending from the exits of the slitter-scorer devices and the intermediate zone are rear guide tables and adjustable feeding plates which can direct the longitudinal sections of paperboard to two or more vertically disposed cut-off machines, where the bands are cut into box blanks of predetermined length. (Tr. at 43; *see also id.* at 110.)

supra.) Plaintiffs' apparatus, by contrast, changes the path of the web to meet the new slitting and scoring unit. (*See* tr. at 86-87, 91; 11/8/78 Tokuno Dep. at 113.)

Plaintiffs argue that what defendant characterizes as a rather simple and obvious change in the design of the slitter-scorer apparatus and associated components was, in fact, a significant improvement over existing equipment. According to plaintiffs, the development of a corrugator capable of achieving an order change at full running speed and without waste constituted a major advance in the art of manufacturing corrugated paperboard.[14]

Defendant denies any inventive contribution. Rather, Langston contends that the component elements of the patented apparatus were well known in the

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14. However, as a result of the price disparity between the devices, the standard triplex slitter-scorer has not been rendered obsolete by the instant order change systems. (Tr. at 646-647)

During 1973 and 1974, Rengo noted certain undesirable features in the operation of the patented apparatus which prompted the development of the two board line system disclosed in United States Patent No. 3,882,765, issued to Rengo on May 13, 1975 as assignee of the named inventor, Masateru Tokuno. (*See* UF 44; P-69 at 42; 1/17/80 Tokuno Dep. at 43-44; D-16) Rengo General Manager Minoru Yamamoto described these features as follows in an article appearing in the September 1975 issue of Paperboard Packaging, a trade publication:

> The prototype can provide only three positions, i.e. top, center and bottom position. Further, the center position is for sheets only, which effectively limits the operations to two slitter-scorer units only. Thus, this model is not useful for small order size as the two units cannot provide sufficient time for set-up. In addition to this disadvantage, the web may be bent too much where the space available between the end of double facer and the cut-off is insufficient.

(P-69 at 42) Defendant is not charged with infringement of the '765 patent. (UF 45; tr. at 268, 417)

It should be noted that the only slitter-scorers sold by Simon in the United States have been of the type disclosed in the '765 patent. (UF 38; tr. at 118-119, 129-132, 136, 268)

art, and that in combination, they produce no new or unexpected result. (Tr. at 389)

B. The Accused Device

In the middle 1970s, Langston, acting in response to market pressure and customer demands, set about to design a line of equipment that could effect an order change without web slowdown and without paper waste, a capability not possessed by any of defendant's existing equipment. (*See* UF 26, 54, 55; tr. at 657-658; Rossetto Dep. at 69, 75, 89; P-15; P-86.) In December 1977, after evaluating and rejecting a variety of proposals,[15] Langston decided to proceed with the development of a two board line system wherein the paperboard web could be fed to either of two slitter-scorer units. (UF 47, 56; tr. at 184-185, 658-660; Rosetto Dep. at 74-80, 93-95; P-15, P-85) Detailed design work on the two board line system began immediately thereafter. (UF 57)

In defendant's apparatus,[16] the components of the dry end of the corrugator are arranged in the conventional sequence with the slitting and scoring equipment located downstream of the rotary shear[17] and upstream

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15. *See*, tr. at 184; Rosetto Dep. at 76. The development of the accused corrugator was carried on by an engineer and design crew who devoted several thousand man-hours to the project. (Rosetto Dep. at 76; *see also* tr. at 215-216.)

It appears that of the designs considered and rejected by Langston, all but one were single board line systems. (*See* tr. at 185-186, 659; Stotzer Dep. at 48-49; P-15.)

16. A general description of the accused device is contained in plaintiffs' exhibit 85, entitled "Corrugating Product Line Sales Support Material." (P-85; *see* Rosetto Dep. at 58-63.)

17. Defendant's shear consists of a cutting edge extending from the circumferential surface of a rotating upper cylinder which operates in conjunction with a stationary knife affixed to the frame below the board line. (P-67) During the cutting operation, the upper cylinder rotates with the result that the descending blade penetrates the board and cuts it against the lower knife. (Tr. at 97)

of the cut-off machine. The slitting and scoring operation is performed by two vertically disposed slitter-scorers[18] (termed an "over and under" arrangement) and a manually adjustable auxiliary station which can be used for special customer orders.[19] Located between the shear device and the slitter-scorer units is a "web diverter" which can direct the web to either: (a) an upper guide table leading to the upper slitting and scoring station; or (b) a lower guide table leading to the lower slitter-scorer unit. (*See* tr. at 198-204.) As in plaintiffs' apparatus, an order change is effected by making a transverse cut in the web at the rotary shear and immediately adjusting the angular position of the diverter to direct the severed web to the new slitter-scorer unit.[20]

Note 17— *(Continued)*

Extending from the exit of the rotary shear (identified as a "chopper" in P-85) is a guide plate which, during a production run, remains in a horizontal position to feed the web to the successive components of the corrugator. When the board produced at the wet end of the corrugator is of less than desirable quality, the upper cylinder is rotated to make multiple cuts in the web. The position of the guide plate is then adjusted obliquely downward to divert the sheets into a waste collection area beneath the equipment. (Tr. at 190-192, 195-198)

18. While one unit is in operation during a production run, the tools of the second station are adjusted automatically to the positions required by the next order. (*See* tr. at 639-640, 642; P-85.) In each unit, the intermeshing rotary knives are mounted on a pair of shafts located downstream of two cooperating scoring rolls. (Tr. at 192-193; *see id.* at 222; Rosetto Dep. at 64-65.) Mill run board is produced by moving the slitting and scoring tools to the side of the shafts and running the paperboard web over the bare cylinders. (Tr. at 206; Rosetto Dep. at 78) In defendant's apparatus, there is no intermediate pathway running between the two slitter-scorer units. (Tr. at 641-642)

19. *See* tr. at 205-205, 643-644; Rosetto Dep. at 79.

20. As the web leaves the slitter-scorer, it passes along a stationary guide table to a rear feeding plate (also termed a "web diverter' in P-85) which can direct the longitudinal sections of paperboard to two vertically disposed cut-off machines. (P-85; tr. at 189, 204)

Although Langston had yet to work out the details of the design of its new instant order change system, it offered the apparatus for sale in early 1978 (*see* P-22,-23,-24), and made arrangements for the installation of a prototype machine at the Louisville plant of the Mead Corporation. (Stotzer Dep. at 35-39) Manufacture of the prototype unit began in the Spring of 1978 and continued until November of that year, at which time the machine was installed at the Mead facility. (*See* tr. at 178, 228, 666-667; Tipson Dep. at 29-33.)[21]

During this same period, Langston and plaintiff Simon were competing for an order for corrugating equipment from the Hoerner Waldorf Co. of St. Paul, Minnesota, a company engaged in the manufacture and sale of corrugated containers. (*See* P-23, P-24, P-28, P-29, P-36, P-45; tr. at 176, 209). On July 10, 1978, following a series of meetings between Hoerner Waldorf executives and Langston personnel (*see* Stotzer Dep. at 12-22; P-24, P-28, P-29), Hoerner Waldorf advised Langston of its decision to purchase defendant's instant order change system "after working out some details concerning the warranty, slitter updating, wet and dry end coordination, training and so forth." (P-38)[22] By letter dated July 14, 1978, Langston President Lynn B. Tipson acknowledged Hoerner Waldorf's "order", stating:

> . . . Langston is honored that you have selected our company as the supplier of your equipment. We regard this Hoerner Waldorf order as one of the most significant in the history of our company.

(P-39) The final details were resolved, and Langston received a firm purchase order from Hoerner Waldorf on

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21. The machine was operated on a production basis, not just a test basis. (Tipson Dep. at 29-30)

22. Upon receipt of the July 10, 1978 letter from Hoerner Waldorf, Langston was "firmly assured" that Hoerner Waldorf was going to purchase the accused equipment subject to the signing of the actual contract of sale. (UF 60; *see* tr. at 669-670.)

September 13, 1978 (Stotzer Dep. at 25-26; *see* tr. at 228.)[23] A corrugator embodying defendant's two board line system went into commercial operation at Hoerner Waldorf's Minneapolis plant in November 1979. (Tr. at 175-176)

II

A. Subject Matter Jurisdiction

The acts constituting patent infringement are set forth in 35 U.S.C. §271(a), which provides in pertinent part:

> [W]hoever without authority makes, uses or sells any patented invention, within the United States during the term therefor, infringes the patent.

The corresponding jurisdictional provision is 28 U.S.C. §1338(a). Venue is governed by 28 U.S.C. §1400(b), which provides:

> Any civil action for patent infringement may be brought in the judicial district where the defendant resides, or where the defendant has committed acts of infringement and has a regular and established place of business.[24]

At the close of plaintiffs' case,[25] and at the conclusion of trial,[26] defendant moved to dismiss plaintiffs' pat-

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23. The record is unclear as to the scope and nature of any activity undertaken by Langston during the period July 10, 1978 to September 13, 1978 toward the construction of the equipment for Hoerner Waldorf (*see* tr. at 226, 228, 666, 668; *compare* Stotzer Dep. at 29 *with* P-44.) It would appear, however, that manufacture of the machine was in progress (*see* P-44; *see also* UF 48), and I so find.

24. For purposes of §1400(b), the "residence" of a corporation is its place of incorpoation. *Fourco Glass Co. v. Transmirra Products Corp.* 353 U.S. 222 (1957).

25. Tr. at 309.

26. Tr. at 675.

ent infringement claim, arguing that plaintiffs had failed to establish a jurisdictional prerequisite to the maintenance of an infringement action: the commission of an act of infringement within the meaning of §271(a) prior to the commencement of the action.[27] Defendant points out that the conduct charged in the complaint is the "sale" of a slitter-scorer embodying the alleged invention disclosed in the '502 patent.[28] According to defendant, the entirety of its activity on the date the complaint was filed constituted no more than the solicitation of orders and advertising its new instant order change system, neither of which rises to the level of a "sale" within the meaning of §271(a). In addition, defendant argues that until the apparatus is "constructed and ready for use, there is an insurmountable obstacle to jurisdiction under the patent laws because the matter of infringement is not capable of determination." (Defendant's Post-Trial Brief at 4)[29] Defendant urges that on the facts of this case, there can be no dispute that Langston had not completed manufacture of the Hoerner Waldorf apparatus—and indeed had not even received a firm

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27. The complaint was filed on August 21, 1978.

28. Complaint ¶¶ 4, 8.

29. In *Ecodyne Corp. v. Croll-Reynolds Engineering Co., Inc.*, 466 PTCJ at A-6 to A-8 (D. Conn., unpublished opinion Dec. 28, 1979), the court granted defendant's motion to dismiss for lack of subject matter jurisdiction, holding that a contract to manufacture an allegedly infringing device does not constitute a "sale" within the meaning of §271(a). According to the court, until the accused device is actually constructed and ready for use, the matter of infringement is so speculative as to be incapable of determination. The defendant could breach its contract and produce nothing at all, or may deviate from the specifications and manufacture a non-infringing device. *Accord Marine Electric Corp. v. Vapor Corp.*, 204 U.S.P.Q. 362 (N.D. Ill. 1979).

Ecodyne, Marine Electric and the other cases cited by defendant Molins all involve *pre-trial* motions to dismiss the patent infringement claim on the ground of lack of subject matter jurisdiction. In the present case, defendant decided not to file such a pretrial motion. (Tr. at 22)

purchase order for the machine—at the time suit was filed on August 21, 1978. Noncompliance with these jurisdictional prerequisites, according to defendant, renders the complaint fatally defective and requires dismissal of plaintiffs' claim for patent infringement.

Plaintiffs deny that the complaint was prematurely filed, pointing to Langston's activity toward the manufacture of the prototype machine and its "commitment" to the Hoerner Waldorf project. In addition, plaintiffs argue that defendant's counterclaim, which seeks a declaratory judgment that the '502 patent is invalid, unenforceable *and not infringed*, cures any alleged jurisdictional defect in their complaint. I agree.

On September 15, 1978, defendant filed an answer to the complaint and a counterclaim in which it asserted that there was a justiciable controversy between the parties with respect to the '502 patent (¶ 30) and asked the court to declare the patent "invalid, not infringed and unenforceable." (Prayer for Relief; *see* ¶ 32.)[29a] On February 5, 1979, more than two months after the installation of the prototype machine at Mead-Louisville, defendant filed an amended answer and counterclaim in which it repeated its allegations with respect to the '502 patent and again requested that the patent be declared invalid, not infringed and unenforceable. In response thereto, plaintiffs filed a reply in which they asked for "the relief sought in their complaint." (Plaintiffs' March 1, 1979 Reply to Amended Answer and Counterclaim)

Had the issues raised in defendant's amended answer and counterclaim been presented by way of an original action for declaratory judgment, it appears that the case would have presented a justiciable controversy

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29a. Jurisdiction over defendant's counterclaim for invalidity and non-infringement is conferred by 28 U.S.C. §§2201, 2202 and 1338(a). Jurisdiction over defendant's "antitrust" counterclaim is conferred by 28 U.S.C. §§2201, 2202, 1338(b) and 15 U.S.C. §1 *et seq.*

ripe for determination. *See Super Products Corp. v. D P Way Corp.*, 546 F.2d 748, 752-55 (7th Cir. 1976) and cases cited therein.[29b] The matter is no less ripe because it has been raised by way of counterclaim.

A trial, defendant argued that dismissal of the complaint would not deprive the court of jurisdiction to determine the issues raised in its counterclaim:

> THE COURT: If this complaint is dismissed or goes out upon the ground that it was premature, I suppose the patent remains open for adjudication at a later date?
>
> MR. GONDA: No, your Honor, The Court has jurisdiction under our counterclaim for validity, *for infringement* and for violation of antitrust laws.

(Tr. at 22) (Emphasis added.) Defendant made a similar argument in its post-trial brief:

> The facts and law herein compel grant of defendant's motion for dismissal of the complaint. This, however, does not resolve the matter in view of defendant's counterclaim for patent invalidity,

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29b. The courts have repeatedly held that actual manufacture, use or sale of a potentially infringing device is not a condition precedent to the maintenance of an action for declaratory judgment by one who has a reasonable and well grounded fear that he will be exposed to an action for patent infringement should he undertake or continue to manufacture his device. *Super Products Corp. v. D P Way Corp., supra*. Rather, if the plaintiff has the definite intention and present ability to manufacture the apparatus, *Super Products Corp. v. D P Way Corp., supra; see Welch v. Grindle*, 251 F.2d 671 (9th Cir. 1957); *Wembley, Inc. v. Superba Cravats, Inc.*, 315 F.2d 87 (2d Cir. 1963), and has received notice of the patentee's stated determination to defend its patent rights (*see* UF 46), the case presents a justiciable controversy ripe for determination. *Super Products Corp. v. D P Way Corp., supra; see Electro Medical Systems, Inc. v. Medical Plastics, Inc.*, 393 F. Supp. 617 (D. Minn. 1975); *cf. Sweetheart Plastics, Inc. v. Illinois Tool Works, Inc.*, 439 F.2d 871 (1st Cir. 1971).

> *non-infringement*, violations of the anti-trust laws and patent misuse.

(Defendant's Post-Trial Brief at 5-6) (Emphasis added.) It seems to make little difference whether this case is decided on the basis of plaintiffs' complaint or on the basis of defendant's counterclaim. Either way, the court has jurisdiction of all the issues—including infringement—and can render the relief requested by the parties.

If there remains any doubt about the matter, plaintiffs are granted leave to file an amended complaint to cure any jurisdictional defect. *Marine Electric Corp. v. Vapor Corp.*, 204 U.S.P.Q. 362 (N.D. Ill. 1979).

B. Validity of the Patent

1. *Obviousness*

The general rule is that a presumption of validity attaches to patents issued by the Patent Office and that this presumption may only be overcome by clear and convincing proof of the invalidity of the patent. *Tokyo Shibaura Electric Co. v. Zenith Radio Corp.*, 548 F.2d 88, 93 (3d Cir. 1977); 35 U.S.C. §282.[30] When relevant prior art has not been considered by the Patent Office, however, the presumption of validity is weakened or lost. *Turzillo v. Mergentime*, 532 F.2d 1393, 1399 (D.C. Cir.), *cert. denied*, 429 U.S. 897 (1976).

Defendant argues that claims 1 and 24 of the patent in suit are invalid for obviousness under 35 U.S.C. §103, which provides:

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30. I am mindful, however, of the following observation by the United States Supreme Court in *Graham v. John Deere Co.*, 383 U.S. 1 (1966):

> We have observed a notorious difference between the standards applied by the Patent Office and by the courts. While many reasons can be adduced to explain this discrepany, one may well be the free rein often exercised by the Examiners in their use of the concept of "invention".

Id. at 18.

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

While the ultimate determination of patent validity is a conclusion of law, the resolution of the obviousness issue involves several discrete factual inquiries:

> First, the scope and content of the prior art are to be discerned; second, the differences between the prior art and the claims at issue are to be ascertained; and third, the level of ordinary skill in the art must be resolved.

Tokyo Shibaura Electric Co. v. Zenith Radio Corp., 548 F.2d at 93, *citing Graham v. John Deere Co.*, 383 U.S. 1 (1966). *See Trio Process Corp. v. L. Goldstein's Sons, Inc.*, 461 F.2d 66, 70-71 (3d Cir.), *cert. denied*, 409 U.S. 997 (1972). In addition, "[s]uch secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc. might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness, these inquiries may have relevancy." *Graham v. John Deere Co.*, 383 U.S. at 17-18.

It is significant that the patent in suit is a combination patent, for as the Third Circuit stated in *Hadco Products Inc. v. Walter Kidde & Co.*, 462 F.2d 1265 (3d Cir.), *cert. denied*, 409 U.S. 1023 (1972), in discussing a design combination patent:

> Under §103 it must be determined that the difference between the prior art and the subject matter of

> the patent are nonobvious to a worker of ordinary skill to justify the issuance of a patent. The courts are bound to a "strict observance" of this rigorous standard.
>
> Where, as in the present case, a combination patent is involved, additional aspects of nonobviousness come into play. The court must "scrutinize combination patent claims with a care proportioned to the difficulty and improbability of finding invention in an assembly of old elements." Such a patent must create a synergistic effect, one in which the combination of elements results "in an effect greater than the sum of the several effects taken separately."

Id. at 1269-71. (Footnotes omitted.)[31] *See id.* at 1271 (wherein the court referred to the "statutory scheme of equating the requirement of nonobviousness of a design patent with that of a mechanical patent"); *Novelart Manufacturing Co. v. Carlin Container Corp.*, 363 F. Supp. 58, 68 (D.N.J. 1973) (*quoting Hadco*).

Having set forth the applicable legal principles, I now turn to the factual inquiries enumerated in *Graham v. John Deere Co.*

In the present case, the determination of the "scope and content of the prior art" requires, at the threshold, a determination of the effective date of the patent in suit. The '502 patent, filed in the United States on January 29, 1973, claims the benefit of the filing dates of Japanese patent applications No. 47-19443 filed on February 25, 1972, and No. 47-34700 filed on April 25, 1972. (*See* D-1; D-2.) The significance of this claim becomes apparent when one examines United States Patent No.

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31. The fact that the component elements of a mechanical patent are old and familiar does not preclude patentability of a novel combination of those elements which produces an unexpected result. *Koppers Co., Inc. v. S & S Corrugated Paper Machine Co., Inc.*, 517 F.2d 1182, 1188 (2d Cir. 1975).

3,831,929, issued to Continental Can Company on August 27, 1974 (the date of the issuance of the patent in suit) as assignee of the named inventor, Ernest W. Hellmer, on an application filed on May 31, 1972 (eight months prior to the date of the filing of the application for the '502 patent).[32] The Hellmer patent discloses all of the component elements of the patent in suit, including a "full web diverter" located between the rotary shear and two vertically disposed slitter-scorer stations[33] which, during an order change, diverts the web to the new slitter-scorer apparatus. (D-44, tab 5). Plaintiffs concede that if the Hellmer patent is included in the prior art, the '502 patent is invalid under 35 U.S.C. §§102 and 103. (*See* tr. at 677.) In order to avoid the effect of the Hellmer disclosure, plaintiffs seek the benefit of the earlier filing dates of the Japanese applications. (*See* tr. at 367.)[34] Defendant denies that plaintiffs are entitled to the priority benefits of the foreign applications, arguing that the specifications contain insufficient information to enable a person skilled in the art to construct the patented apparatus and practice the invention. (Defendant's Post-Trial Brief at 11-14, *citing, inter alia, Yasuko Kawai v. Metlesics*, 480 F.2d 880 (3d Cir. 1973).[35] Defendant's specific criticism of the foreign ap-

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32. The effective date of a United States patent as a prior art reference is the date of the filing of the patent application. (Tr. at 373)

33. Each station is comprised of a standard triplex slitter-scorer. (*See* D-44, tab 5.)

34. 35 U.S.C. §§104 and 119, in combination, allow a foreign inventor to establish a "date of invention" earlier than his United States filing date if he files his United States application within 12 months of the filing of the foreign application. However, the priority date may never be earlier than the date of the foreign application. *Yasuko Kawai v. Metlesics*, 480 F.2d 880, 884-86 (3d Cir. 1973).

35. In *Kawai*, the Third Circuit held that a foreign patent application upon which a claim of priority is based must satisfy the requirements of 35 U.S.C. §112, which provides in pertinent part:

plications centers around the omission of circuit diagrams from the specifications: Mr. Fiddler, a patent attorney, testified that since the foreign inventor (Mr. Tokuno) stated that these diagrams were necessary to practice the invention (*see* 11/8/78 Tokuno Dep. at 82), their omission from the Japanese applications renders the foreign documents fatally deficient under §112. (Tr. at 369-370, 482-483, 490).[36] Mr. Juhasz, a retired Patent Office Examiner, testified that the specifications were inadequate in that there was no disclosure with respect to the circuitry to interrelate the action of the rotary shear with the movement of the web diverter. (Tr. at 555-557, 573, 602-604). After a careful review of the testimony adduced at trial, the trial exhibits and the deposition testimony, it is my conclusion that plaintiffs are entitled to the priority date of Japanese application No. 47-19443.

Note 35 — *(Continued)*

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

In other words, the specifications of foreign applications are to be tested against the disclosure requirements of United States law for purposes of §119.

36. Circuit diagrams were included in the application for the '502 patent. (*See* D-2) The specific circuitry disclosed in figures 13-20 and 24-27 of the patent in suit was not designed by Mr. Tokuno, and is not disclosed in either of the Japanese applications. (UF 34)

It should be noted that Mr. Fiddler had no independent opinion with respect to the adequacy of the disclosure of the priority documents. Rather, his conclusion that the foreign applications fail to satisfy the requirements of §112 appears to be based on Tokuno's alleged admission that disclosure of the circuitry is necessary to make and use the invention. (*See* tr. at 369-370, 482-483, 490.)

First, the "enabling disclosure" required by §112[37] is directed to persons skilled in the art to which the invention pertains, and the adequacy of the disclosure must be evaluated with respect to such persons.[38] According to defendant, the level of skill in the pertinent art is "very high", and is characterized by a designer of machinery for manufacturing corrugated paperboard, or equivalent:

> (a) having a degree in engineering,
>
> (b) having at least three years experience in designing precision automatic machinery for processing corrugated paperboard,
>
> (c) having at least three years experience in *designing pneumatic, hydraulic and electrical systems* for precision automatic machinery for processing corrugated paperboard,
>
> (d) who is thoroughly familiar with the function and operation of slitter-scorers of the prior art, [and]
>
> (e) who is familiar with the function and operation of related equipment in a corrugator such as a conventional cut-off machine having two paths.

(Pre-Trial Order, Defendant's Fact Contention # 3) (Emphasis added.) Plaintiffs agree that a person of ordinary skill in the art has a "degree in engineering or equivalent and . . . several years experience in working with automatic machinery for processing corrugated paperboard." (Plaintiffs' Post-Trial Brief at 13) While I do not hold that the hypothetical person must possess all of the qualifications enumerated by defendant, I do find that the level of skill in the art is quite high, and is characterized by a person with an engineering degree who is

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37. This is the "so-called 'how to use' requirement." *Yasuko Kawai v. Metlesics*, 480 F.2d at 886.

38. *See Hirschfeld v. Banner*, 462 F. Supp. 135, 142 (D.D.C. 1978).

thoroughly familiar with the design, construction and operation of corrugating equipment and the associated pneumatic, hydraulic and electrical systems.[39] *See generally Koppers Co., Inc. v. S & S Corrugated Paper Machinery Co.*, 367 F. Supp. 55, 60 (E.D.N.Y. 1973), *aff'd*, 517 F.2d 1182 (2d Cir. 1975); *Novelart Manufacturing Co. v. Carlin Container Corp.*, 363 F. Supp. 58, 68, 72 (D.N.J. 1973).

In my opinion, the disclosures contained in the foreign applications would allow such a person to make and use invention without engaging in extensive experimentation and without requiring any inventive effort beyond the teachings of the Japanese documents. The specification of application No. 47-19443 (P-4) contains a detailed description of every mechanical element disclosed and claimed in the '502 patent (*Id.* at 8-37); the application describes in detail the positions of the various elements as the web is moved between the positions illustrated in figure 10 (Id. at 31-34); the drawings teach the vertical arrangement of the slitter-scorers and the positioning of the guide means leading to and from the stations (Id. figs. 1, 3-8, 10); the specification teaches the relationship between the operation of the rotary shear and the movement of the web diverter during an order change (Id. at 31-34); and the applications disclose the use of pneumatic cylinders to actuate the movable guide plates and to bring the upper knife of the rotary shear into contact with the lower receiving roll (*Id.* at 18-19, 30, 36). On these facts, I find that a hypothetical man experienced in the design of pneumatic, hydraulic and electrical control systems for corrugators could have applied that knowledge to the apparatus disclosed in P-4 and, without undue experimentation, practice the

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39. *See* tr. at 569. Such a person would be thoroughly familiar with the structure and operation of a rotary shear and slitting and scoring equipment, which had been in commercial use long prior to 1972.

claimed invention.[40] Although §112 requires that the disclosure be in "full, clear, concise and exact terms," the specification is not intended to be a blueprint or a set of step-by-step directions for constructing the apparatus disclosed in the patent.[41] *Cf. Trio Process Corp. v. L. Goldstein's Sons, Inc.*, 461 F.2d at 74. Perhaps this is no more evident than in the prior art patents offered by defendant in support of its claim that the patent in suit is invalid for obviousness. (*See* D-44) Four of the eight patents provided by defendant, including the Bruker patent (United States Patent No. 2,393,586), to which so much time was devoted at trial, contain no circuit diagrams, no block diagrams, and no other description of the circuitry associated with the mechanical elements.[42]

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40 This would include coordinating the action of the rotary shear with that of the front guide plate during an order change.

The first paragraph of §112 requires that the specification be complete enough to enable one of ordinary skill in the art to practice the invention without undue experimentation. The prohibition against "undue" experimentation means that the need for a minimum amount of experimentation is not fatal. Every detail need not appear in the specification, if the skill of the art is such that what does appear enables one skilled in the art to make and use the invention. The specification need not describe the conventional nor disclose what the skilled already possess. *See General Electric Co. v. Brenner*, 407 F.2d 1258, 1261 (D.C. Cir. 1968).

41. It is not at all unusual to exclude conventional technology and design details from the specification when these features do not constitute a crucial aspect of the claimed invention. (Tr. at 594-595) Plaintiffs do not claim any circuitry as part of their invention. (Tr. at 139, 607)

42. The Matthews (United States Patent No. 2,756,050) and Saunders (United States Patent No. 3,307,441) patents do contain circuit diagrams, but the inventors also claim components of these circuits as part of the invention. Although the Hellmer patent (United States Patent No. 3,831,929), for which defendant's witness Juhasz was Primary Examiner, does contain a description of the circuitry in the specification (*see* tr. at 488-491; D-44, tab 5, fig. 3-5; id. col. 5, l. 12-59) the patent contains no circuit diagrams and no block diagrams. At trial, in testifying with respect to the suffi-

Second, defendant misconstrues Mr. Tokuno's testimony regarding the importance of the circuitry illustrated in figures 13-20 of the patent in suit to the practice of the invention. Although Tokuno testified that the circuitry was "necessary" to construct an operative machine, this was in response to the following question:

> Are the circuits shown in figures 13-20 of the '502 patent necessary for *a manufacturer* to make this slitter-scorer apparatus and use it?

(11/8/78) Tokuno Dep. at 82) (Emphasis added.)[43] Later, Tokuno explained his answer, stating merely that some type of hydraulic and electrical control system would have to be installed in the corrugator in order for the machine to operate. (*Id.* at 127-128) Clearly, Tokuno was not offering an opinion on whether the Japanese applications satisfy the disclosure requirements of §112.

Having found that the Japanese applications satisfy the disclosure requirements of §112 and that plaintiffs are therefore entitled to a priority date of February 25, 1972 (thus eliminating the Hellmer patent as prior art), I now turn to an examination of the scope and content of the prior art.[44] Inasmuch as defendant contends that

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Note 42 — *(Continued)*
ciency of the disclosure of the Tokuno patents, Juhasz stated initially that circuit diagrams were necessary (tr. at 555), then retrenched from this position and stated that block diagrams would suffice. (Tr. at 596) He acknowledged that the details of the circuitry were not necessary (tr. at 597), and indicated that the disclosure of the '502 patent probably was more detailed than necessary. (Tr. at 597-598)

43. A "manufacturer" may or may not be a person skilled in the art as that hypothetical person has been described for purposes of this case.

Tokuno admitted that he did not design the circuitry disclosed in figures 13-20. (11/8/78 Tokuno Dep. at 84; *see* UF 34)

44. In *Trio Process Corp. v. L. Goldstein's Sons, Inc.*, 461 F.2d at 69 n. 3, the court stated:

highly pertinent art was not cited or considered by the Patent Office, I shall begin my analysis with a review of the prosecution history of the patent in suit.

The file wrapper (D-2) reveals that the Examiner rejected all 18 original claims on the ground of indefiniteness under 35 U.S.C. §112.[45] In addition, the Examiner disallowed claims 1-5 and 16-18 under 35 U.S.C. §103 as unpatentable over 5 prior art references of record: the David patent, U.S. Patent No. 3,408,886;[46] the Robinson patent, U.S. Patent No. 2,369,253;[47] the Thorn patent, U.S. Patent No. 2,985,223;[48] the Hawkins patent, U.S. Patent No. 1,959,424;[49] and the Dent pat-

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Note 44 — *(Continued)*

Prior art has been defined as follows:

> The existing state of knowledge in a particular art at the time an invention is made. It includes the issued patents . . . publications, and all other knowledge deemed to be common thereto such as trade skills, trade practices and the like.

Id., quoting A. Smith, Patent Law Cases, Comments and Materials 2 (1964).

45. The Examiner stated that there was "no proper antecedent basis" for some of the language contained in the claims. (D-2 at 156)

46. David discloses tandem slitter-scorers movable vertically or horizontally. While one unit is in operation during a production run, the tools of the second station can be adjusted to the positions required by the next order. During the shifting operation between the operative and idle positions, the rotary shear chops the web and guide plates divert the paperboard sheets into a waste container located between the shear device and the slitter-scorer units. (D-3)

47. Robinson teaches a cutting machine for cutting sheet materials into blanks of predetermined width. (D-3)

48. Thorn discloses a conventional corrugator, the component elements of which are arranged in the conventional sequence with a triplex slitter-scorer located between the rotary shear and a duplex cut-off machine. The Thorn invention relates to the synchronization of the running speed of the double facer, slitter-scorer, and cut-off machine during an order change. (D-3)

49. Hawkins teaches separating the cutting tools from the creasing tools (*i.e.*, mounting the operating heads on separate pairs of cooperating shafts) in order to preserve the quality of the newly manufactured board during the slitting and scoring operation. (D-3)

ent, U.S. Patent No. 3,489,043.[50] (D-2 at 156-157) According to the Examiner, claims 1-5 were unpatentable over David in view of the Robinson patent, and claims 1-5 and 16-18 were unpatentable over Thorn in view of Robinson, Hawkins and Dent.[51] However, the Examiner concluded that claims 5-16, if cured of the §112 violation, would be allowable subject matter. (D-3 at 156) Tokuno amended the application to correct the indefiniteness objection, cancelled claims 2-5, and added new claims 14-24. Claim 1 was amended to include the allowable subject matter of original claim 6, and claims 16-18 were made dependent on new claim 1. (*Id.* at 159-172) On March 12, 1974, the Patent Office issued a Notice of Allowance of all claims. (*Id.* at 178-179)

Defendant urges that the following pertinent art, not cited or considered by the Patent Office, weaken or destroy the presumption of validity of the patent in suit; Arkell patent, U.S. Patent No. 118,327; Biggert patent, U.S. Patent No. 1,876,838; Bruker patent, U.S. Patent No. 2,393,586; Matthews patent, U.S. Patent No. 2,756,050; Van Norde patent, U.S. Patent No. 2,343,720; Wagner patent, U.S. Patent No. 2,540,971; Saunders patent, U.S. Patent No. 3,307,441; and various publications which, defendant argues, clearly dem-

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50. Dent discloses a diverter mechanism for directing the longitudinal sections of scored web from the exit of a triplex slitter-scorer to a plural level cut-off arrangement. (D-3)

51. The Examiner stated:

> It would be obvious to substitute in [David] for his cutter 2 the analogous cutter as shown by [Robinson] in Fig. 3.
>
> It would be obvious to substitute in [Thorn] for his cutter 2 [sic] the analogous cutter shown by [Robinson] in Fig. 3, and for his rear guide means the analogous rear guide means as shown by [Dent] in Fig. 1. It would further be obvious to mount the scores or fluting roll and slitter on separate shafts as shown by [Hawkins] in Fig. 1.

(D-3 at 156)

onstrate that all of the component elements of the claimed invention were old and well-known in the art. (D-44) Only a few of these warrant further mention:

(a) The Bruker patent, issued on January 29, 1946, discloses tandem slitter-scorers which can achieve an order change without slowing down the forward feed of the web. However, the machine will generate a certain amount of waste when the slitting and scoring tools are shifted from the operative to the idle position. (Tr. at 404-408, 550-554, 661)

(b) Wagner discloses a sheet stacking and conveying machine which has a guide means to feed the web to any one of three flow paths. In Wagner's apparatus, shear B cuts the web and diverter D (located between the shear and belt conveys G, H and I) selectively feeds the paperboard sheets to one of three vertically arranged conveyors. (Tr. at 536-537)

(c) In the Matthews apparatus, two slitter units can be alternatively positioned to engage the web, which runs along a single board line. Contrary to the testimony of defendant's witnesses (*see* tr. at 388-389, 538-539, 550), Matthews does not teach an apparatus wherein the web can be alternatively directed along two flow paths *to the slitters*. (*See* D-44, tab.4, fig. 2; *id*. col. 3, 1.59-67; tr. at 541-542.) Rather, the slitter units are moved into the path of the web.

(d) Saunders discloses a corrugator comprising a triplex slitter-scorer and a diverter mechanism downstream of the slitter-scorer leading to a multi-level cut-off. (Tr. at 390-391, 517) In Saunders' apparatus, the movement of the rear lead-in table fingers is coordinated with the shifting of the slitter-scorers during an order change. (*See* D-44, tab 8, col. 1, 1.71-col. 2,1.4.)

(e) Van Norde teaches a sheet slitting and winding machine wherein an order change is effected by stopping the machine, disengaging the web from the upper slitter unit, and feeding it to a lower slitting device. (Tr. at 542-544)[52]

In summary, although the prior art does not teach the placement of a diverter plate upstream of the cutting and grooving tools for directing the web to either of two vertically disposed slitter-scorer units, it does teach: (1) the alternative use of two slitting and scoring devices, whether arranged in tandem or in some vertical fashion; (2) the vertical arrangement of other component parts of corrugators (*e.g.*, cut-off machines);[53] (3) a diverter mechanism or guide means extending from the exit of the slitter-scorer for directing the web to two or more vertically disposed cut-off machines; and (4) a diverter mechanism extending from the inlet of the slitter-scorers which can deflect waste sheets from the exit of the rotary shear to a container located between the devices.

While there can be no serious dispute that all of the component elements of the patented combination appear in some form in the prior art,[54] plaintiff argues that the combination of these elements into a machine capa-

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52. It would appear that with the possible exception of Van Norde, wherein the web is fed to the new slitter device instead of moving the slitter into the path of the web, and Bruker, which teaches an order change without web slowdown, the patents and literature cited by defendant, while pertinent, expand on the concepts taught by the primary references considered by the Examiner. I find, therefore, that the presumption of validity is only slightly diminished, if at all, by the failure of the Patent Office to consider the art offered by defendant. However, this presumption will not preclude a finding of invalidity where the evidence clearly establishes the obviousness of the alleged invention. *See also* note 30 *supra*.

53. Tr. at 650.

54. It is not necessary to find all of the elements of the combination in one prior art reference. *Novelart Manufacturing Co. v. Carlin Container Corp.*, 363 F. Supp. at 70.

ble of effecting an order change at full running speed and without deliberate waste constitutes a patentable improvement over the art. (Tr. at 514) As stated previously, the inquiry to be made is whether the combination produces a "nonobvious 'synergistic result' in which the whole in some way exceeds the sum of its parts." *Koppers Co., Inc. v. S & S Corrugated Paper Machine Co., Inc.*, 517 F.2d at 1188, *quoting Anderson's-Black Rock, Inc. v. Pavement Salvage Co., Inc.*, 396 U.S. [illegible] (1969); *A & P Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147 (1950). After a careful review of the testimony adduced at trial, the deposition testimony, and the exhibits admitted into evidence, I find that the differences between the prior art and the claims in suit[55] would have been obvious to a person having ordinary skill in the art in 1972, as that term has previously been defined. Each element of the combination performs in the same manner and with the same result as in the prior art machines. The placement of the diverter plate between the rotary shear and the slitter-scorers, while having no identical antecedent in the art,[56] would not have been an unobvious concept to a person possessing the high level of skill of those in the pertinent art. Focusing on this element and the diverter mechanisms disclosed in U.S. Patents 3,307,441, 3,489,043 and 3,408,886,[57] I have no doubt that a person skilled in the

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55. Claims 1 and 24 of the patent in suit are set out *in toto infra*.

56. It is well settled that novelty is not to be equated with nonobviousness.

57. In *Tokyo Shibaura Electric Co. v. Zenith Radio Corp.*, 548 F.2d at 94 n. 18, the court states:

> The hypothetical person having ordinary skill in the art is "charged with knowledge of all that the prior art disclosed at the time of his alleged invention, irrespective of whether persons of ordinary skill in the field, or he himself, or anyone else, actually possessed such all-encompassing familiarity with prior disclosures." *Cool-Fin Electronics Corp. v. International Elec-*

art would have found the rear diverter mechanisms taught by Saunders, Wagner and Dent for directing the web to a multi-level cut-off or stacking arrangement, and the diverter disclosed by David for directing the web away from the slitting and scoring apparatus, obviously adaptable to a pair of vertically disposed slitter-scorers to produce what plaintiffs claim is an inventive contribution to the art.[58] In short, "this patent simply arranges old elements with each performing the same function it had been known to perform, although perhaps producing a more striking result than in previous combinations." *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976).[59] However, this result falls short of the "unusual or surprising consequences" resulting from the unification of old elements which are necessary to sustain a combination patent against the "rather severe test" of obviousness. *Koppers Co., Inc. v. S & S Corrugated Paper Machine Co., Inc.*, 517 F.2d at 1189, *quoting A & P Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. at 142.

This conclusion is supported by the Hellmer patent which, although not prior art, nevertheless provides at least secondary evidence that the combination is not a patentable improvement over the art.[60] Contemporane-

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Note 57 — *(Continued)*

tronic Research Corp., 491 F.2d 660, 662 n. 7 (9th Cir. 1974), *quoting Walker v. General Motors Corp.*, 362 F.2d 56, 60 n. 3 (9th Cir. 1966). *Accord, Layne-New York Co. v. Allied Asphalt Co.*, 501 F.2d 405, 406 (3d Cir. 1974), *cert. denied*, 421 U.S. 914, 95 S.Ct. 1572, 43 L.Ed. 23 780 (1975).

58. *See* tr. at 518.

59. In *Sakraida*, the Supreme Court held that the Constitution requires that there actually be an "invention" before someone is entitled to the protection of the patent laws, and that an improvement which constitutes no more than the "work of skillful mechanic" is simply not patentable. 425 U.S. at 279.

60. Although Hellmer does not claim the concept of instant order change as part of his invention, the patent clearly teaches an

ous independent development, while not conclusive, is evidence of the obviousness of the invention. *Concrete Appliances Co. v. Gomery*, 269 U.S. 177, 185 (1925); *Fred Whitaker Co. v. E. T. Barwick Industries, Inc.*, 551 F.2d 622, 628 (5th Cir. 1977); *Continental Can Co. v. Old Dominion Box Co.*, 393 F.2d 321, 327 (2d Cir. 1968). (*See* tr. at 377-378.)

Finally, plaintiffs cite certain "secondary considerations" outlined in *Graham v. John Deere Co., Supra*, — such as the failure of Langston and others to develop a continuous run no-gap corrugator[61] and industry recognition of Tokuno's contribution to the art[62] — in support of their contention that the '502 patent is valid. However, secondary considerations "cannot breathe life into a patent otherwise invalid because of obviousness." *Continental Can Co. v. Old Dominion Box Co.*, 393 F.2d at 326. They are entitled to "only measured weight" and cannot themselves support a finding of nonobviousness if it is otherwise established that a patent's disclosures are obvious in light of the prior art. *Tokyo Shibaura Electric Co. v. Zenith Radio Corp.*, 548 F.2d 88, 94-95 (3d Cir. 1977). On the facts of this case, I find that any evidence of record with respect to the secondary considerations[63] does not overcome the evidence of obviousness arising from the three primary factual inquiries: the scope and content of the prior art; the differences between the prior art and the claims at issue; and the level

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apparatus capable of achieving an order change without web slowdown, and Hellmer notes that this is an improvement over existing equipment. (*See* P-44, tab 5, col. 3, l.38-45; *id.* col. 3, l.19-38.)

61. *See* tr. at 215-216; *see also id.* at 518-519; note 15 *supra*.

62. *See* P-90. Plaintiffs cannot, and do not, rely on commercial success as indicia of nonobviousness. (Plaintiffs' Reply Brief at 13) The record belies any such argument. *See* note 14 *supra*.

63. As stated previously, *see* note 14 *supra*, as a result of the price disparity between the machines, the instant order change systems have not rendered the standard triplex slitter-scorer obsolete.

of ordinary skill in the art. *Tokyo Shibaura Electric Co. v. Zenith Radio Corp., supra.*

2. *Indefiniteness*

As a second ground of attack on the validity of the patent, defendant urges that claim 1 fails to comply with the §112 requirement that the claims of a patent particularly point out and distinctly claim the subject matter which the inventor regards as his invention. 35 U.S.C. §112, ¶ 2,[64] Specifically, defendant argues that while the claim calls for the selective movement of feeding plate 54 to three discrete positions during the various shifting operations,[65] the drawings and written description make it abundantly clear that diverter mechanism moves only between an upper and lower position—there is no horizontal alignment of the feeding plate with intermediate guide 511. (*See* tr. at 346-361; 495-505; 570-571; D-1, col. 7, 1.39 - col. 9, 1.9; *id.* fig. 12; *see also* note 12 *supra.*) This alleged inconsistency between the claim and specification, according to defendant, renders the claim fatally defective under §112.

I find defendant's argument unpersuasive. "[I]t is fundamental that claims are to be construed in the light of the specifications and both are to be read with a view to ascertaining the invention . . . ." *United States v. Adams*, 383 U.S. 39, 49 (1966). While the specification may not be utilized to expand the patent monopoly, *A & P Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. at 149, "it is entirely appropriate to resort to the specification for the purpose of understanding patent claims that

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64. *See* tr. at 350, 503.

65. The claim recites "means associated with the feeding guide plate for aligning said feeding guide plate with the lower guide plate, with the intermediate guide plate and with the upper guide plate . . . ." (D-2, col. 22, 1.30-34).

I do not treat plaintiffs' failure to address this issue in the post-trial submissions as an acknowledgment of the validity of defendant's argument. Rather, I treat it as an excusable oversight.

are complex, unclear, or ambiguous." *Dennison Manufacturing Co. v. Ben Clements and Sons, Inc.*, 467 F. Supp. 391, 401 (S.D.N.Y. 1979), *citing Maclaren v. B-I-W Group Inc.*, 535 F.2d 1367, 1372-73 (2d Cir.), *cert. denied*, 429 U.S. 1001 (1976). The existence of a conflict over the possible meaning of terms in a claim does not require a finding that the claim is indefinite. *Dennison*, *supra*, at 402. While I grant that a literal reading of claim 1 would suggest that the feeding plate moves between three discrete positions, I do not find the language so clear as to exclude all other possible interpretations or to preclude reference to the specification.[66] It is my conclusion that the claim, when read in light of the written description and drawings, is set out with the specificity required by §112.

C. Infringement

The finding of invalidity disposes of this action, for an invalid patent cannot be infringed. *Pambella v. Hamilton Cosco, Inc.*, 377 F.2d 445, 447 (7th Cir. 1967). Nevertheless, the "preferred procedure" has been for the district court to make findings on the issue of infringement so that, in the event of reversal on validity, a remand for determination of the question of infringement

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66. *Compare Paeco, Inc. v. Applied Moldings, Inc.*, 562 F.2d 870, 874 (3d Cir. 1977) (where language of a claim is clear and unambiguous, the court may not go beyond the claim to the specification).

It should be noted that the language under challenge by defendant in the present case appears in a "means" clause. (*See* note 65 *supra*.) The final paragraph of §112 provides:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function *without the recital of structure, material, or acts in support thereof*, and such claim shall be construed to cover the corresponding structure, material, or acts *described in the specification* and equivalents thereof.

35 U.S.C. §112. (Emphasis added.)

will not be necessary. *Frank W. Eagan & Co. v. Modern Plastic Machinery Corp.*, 387 F.2d 319 (3d Cir.), *cert. denied*, 391 U.S. 966 (1967);[67] *Hall v. U.S. Fibre Plastics Corp.*, 341 F. Supp. 978, 986 (D.N.J. 1971); *Worthington v. Southern New Jersey Newspapers, Inc.*, 323 F. Supp. 443, 465 (D.N.J. 1970). *See also Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 330 (1945).

In determining whether an accused device infringes a patent,[68] resort must had in the first instance to the language of the claims. Plaintiffs allege infringement of claims 1 and 24 of the patent in suit, which read:

> 1. A slitter-scorer apparatus for slitting and fluting materials along a running direction which comprises, in combination,
>
> > a. a rotary shear device containing an upper roll which is provided with a cutting edge which extends from the circumferential surface of said roll and a lower roll provided with a cutting edge-receiving portion which is adapted to receive the depression of the cutting edge, means associated with at least one of the upper and lower rolls for bringing the cutting edge and the cutting edge-receiving portion

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67. In *Frank W. Eagan*, the court stated:

> Applying the teachings of the *Graham* and *Adams* cases, we have reached the conclusion that the claimed invention was not "obvious" within the statutory meaning, and we must accordingly reverse the judgment of the District Court. Regrettably, the District Court did not follow the preferred procedure of deciding the issue of infringement; consequently, the cause must be remanded for further proceedings.

387 F.2d at 320.

68. Plaintiffs, of course, bear the burden of proof on the issue of infringement.

into engaging and disengaging relationship with respect to each other, means for rotating said rolls in opposite directions.

b. an upper and lower slitter-scorer device disposed downstream of the rotary shear, said upper and lower slitter-scorer device being substantially vertically disposed with respect to each other said slitter portion of the device including an upper slitting roll provided with an upper cutting edge and a lower slitting roll provided with a lower cutting edge which corresponds to and is adapted to engage the upper cutting edge, said upper and lower cutting edges being circular and extending substantially vertically from the circumferential surface of said rolls, said rolls being mounted for rotation, said scorer portion containing an upper fluting roll provided with substantially circular male fluting edges and a lower fluting roll provided with corresponding substantially circular female fluting edges, said male and female fluting edges extending substantially vertically from the circumferential surfaces of said rolls, said upper and lower fluting rolls being adapted for engagement and disposed behind the upper and lower slitting rolls, respectively, and said fluting rolls being mounted for rotation, means for rotating the upper and lower slitting rolls and the upper and lower fluting rolls.

c. a front guide means extending from the exit of the rotary shear to the inlet of the slitter-scorer devices, said front guide means comprising a feeding guide plate extending a distance from the exit of the rotary shear, an intermediate guide plate extending substantially horizontally from the feeding guide plate to an intermediate zone between the upper and lower slitter-

scorer device, an upper guide plate extending obliquely upward from above the intermediate guide plate to the inlet of the upper slitter-scorer device and a lower guide plate extending obliquely downward from below the intermediate guide plate to the inlet of the lower slitter-scorer device and means associated with the feeding guide plate for aligning said feeding guide plate with the lower guide plate, with the intermediate guide plate and with the upper guide plate, and

d. a rear guide means extending from the exit of the slitter-scorer device.

* * *

24. The slitter-scorer apparatus of claim 1 wherein a cut-off machine provided with at least one inlet thereto is disposed behind the rear guide means.

(P-1) Plaintiffs concede, as they must, that claim 1 does not read literally on the accused device (UF 51), however, they invoke the doctrine of equivalents, explained more fully hereafter, in support of their claims of infringement.

Defendant denies that its apparatus responds to the language of claim 1, arguing that the '502 patent recites at least three elements or features which are not found in its machine:

Claim 1 of the '502 Patent	Defendant's Apparatus
a. a rotary shear consisting of upper and lower oppositely rotating rolls, the lower roll being adapted to receive the cutting edge of the upper blade, and a mechanism for bringing the rolls into engaging and disengaging relationship with respect to each other.	a shear comprising a rotable upper member with cooperates with a stationary dead knife.
b. an intermediate guide plate extending substantially horizontally from the feeding guide plate to an intermediate zone between the slitter-scorers, and means for aligning the feeding guide plate with the intermediate guide plate.	none.
c. in the slitter-scorer units, scoring rolls located downstream of the slitting tools.	placement of the slitting tools behind the scoring rolls

In addition, defendant contends that plaintiffs are estopped by the file wrapper from invoking the doctrine of equivalents to show infringement of claim 1 of the '502 patent.

Every element recited in a combination claim is assumed to be material, and the patent is not infringed unless the accused device includes each of the elements, or its structural and functional equivalent. *See Novelart Manufacturing Co. v. Carlin Container Corp.*, 363 F. Supp. at 77. Moreover, no single element or group of elements can be deemed to represent the "heart" or "gist" of the invention, so that infringement may be found despite the omission of other, insignificant elements from the accused device. *See Aro Manufacturing Co., Inc. v. Convertible Top Replacement Co.*, 365 U.S. 336, 339 (1961). Nevertheless, it is equally clear that the doctrine of equivalents applies to combination patents as well as

to any other type of invention, although the area of equivalence may vary depending on the particular circumstances of the case and any estoppels which may have been created by the patentee during the prosecution of his application. *See Graver Tank & Manufacturing Co. v. Linde Air Products Co.*, 339 U.S. 605, 608 (1950); *FMC Corp. v. F.E. Myers & Bros. Co.*, 384 F.2d 4, 10 (6th Cir. 1967), *cert. denied*, 390 U.S. 988 (1968).

In *Graver Tank*, the United States Supreme Court explained the doctrine of equivalents as follows:

> [Courts] have * * * recognized that to permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing. Such a limitation would leave room for—indeed encourage—the unscrupulous copyist to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law. One who seeks to pirate an invention, like one who seeks to pirate a copyrighted book or play, may be expected to introduce minor variations to conceal and shelter the piracy. Outright and forthright duplication is a dull and very rare type of infringement. To prohibit no other would place the inventor at the mercy of verbalism and would be subordinating substance to form. It would deprive him of the benefit of his invention and would foster concealment rather than disclosure of inventions, which is one of the primary purposes of the patent system.
>
> The doctrine of equivalents evolved in response to this experience. The essence of the doctrine is that one may not practice a fraud on a patent. Originating almost a century ago in the case of *Winans v. Denmead*, 15 How. [56 U.S.] 330, 14 L.Ed. 717, it

> has been consistently applied by this Court and the lower federal courts, and continueds today ready and available for utilization when the proper circumstances for its application arise. "To temper unsparing logic and prevent an infringer from stealing the benefit of an invention" a patentee may invoke this doctrine to proceed against the producer of a device "*if it performs substantially the same function in substantially the same way to obtain the same result. Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42, 50 S.Ct. 9, 74 L.Ed. 147.

339 U.S. at 607-608. (Footnote omitted.) (Emphasis added.) The theory upon which the doctrine is founded is that "if two devices do the same work in substantially the same way, and accomplish substantially the same result, they are the same, even though they differ in name, form or shape." *Machine Co. v. Murphy*, 97 U.S. 120, 125 (1877). The practical significance of this rule is that it permits a patentee to realize the full benefit of his patent grant by enabling him to read his patent claims on a device which does not literally infringe the patent. It protects a patentee from a person who merely substitutes an equivalent element in a device and thereafter practices the invention without literally infringing the claims.

Graver Tank provides the following guidance for determining equivalency:

> *What constitutes equivalency must be determined against the context of the patent, the prior art, and the particular circumstances of the case.* Equivalence, in the patent law, is not the prisoner of a formula and is not an absolute to be considered in a vacuum. It does not require complete identity for every purpose and in every respect. In determining equivalents, things equal to the same thing may not be equal to each other and, by the same token, things for most purposes different may sometimes be equivalents. *Consideration must be given to the*

purpose for which an ingredient is used in a patent, the qualities it has when combined with the other ingredients, and the function which it is intended to perform. An important factor is whether persons reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was.

339 U.S. at 609. (Emphasis added.)

"[I]n considering the application of the doctrine of equivalents to combination claims, it does not suffice to argue that the overall combination of elements present in the accused device is the functional equivalent of the overall combination recited in the claims; instead, the determination of equivalency must be on an element-by-element basis—the Court must find each recited element, or its equivalent, in the accused device." *Berkey Photo, Inc. v. Klimsch-Repro, Inc.*, 388 F. Supp. at 595. In the present case, if the '502 patent were valid, the evidence would permit of no conclusion other than that the elements of defendant's machine are the equivalent of those set forth in claims 1 and 24 of the patent in suit, and that the machines in general, and the component parts in particular, perform substantially the same function in substantially the same way to achieve the same results.

With respect to the rotary shear, I accept the testimony of plaintiffs' witnesses that both designs were common in the industry for many years (Tr. at 152-153), and that any shear capable of making a single transverse cut in the web at high speed may be utilized in plaintiffs' apparatus. (11/8/78 Tokuno Dep. at 125) There can be no serious dispute that the two devices achieve the same result (Tr. at 99, 150-153); rather, defendant urges that they function differently and employ different means. However, the differences between the structure and operation of defendant's rotary shear and that constructed in accordance with the teachings of the '502 patent may

fairly be characterized as differences in degree which are insufficient to negate a conclusion of equivalency.

In both devices, the cutting operation is performed by a cutting edge which extends from the circumferential surface of a rotatable upper roll, and which cooperates with a lower member to make a single transverse cut in the web during an order change. Although the upper roll in plaintiffs' device is rotated to bring it up to board speed in preparation for an order change, it appears that this operation is merely to facilitate the programming of the machine, and that the cutting operation could be performed without requiring such a preparatory step. (Tr. at 276) As for defendant's substitution of a "stationary dead knife" (*see* P-67) for a rotating upper roll which is adapted to receive the cutting edge of the descending upper knife,[69] I hold that in light of the prior art and the interchangeability of the devices, these structural dissimilarities are insufficient to avoid a finding of equivalency. *See Machine Co. v. Murphy*, 97 U.S. 120 (1877). In the final analysis, equivalence is not a matter of identity; the question is one of *substantial* identity.

More troublesome is the elimination of the intermediate guide from defendant's apparatus. As stated previously, the general rule is that every element recited in a combination claim is assumed to be material, and omission of a single element is fatal to a charge of infringement. *See Sears, Roebuck & Co. v. Minnesota Mining & Manufacturing Co.*, 249 F.2d 66, 68-69 (4th Cir. 1957), *cert. denied*, 355 U.S. 932 (1958). However, this rule does not preclude an examination of the accused device to determine whether it employs a mechanical equivalent which performs the same function and

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69. According to defendant, its shear represents an "evolutionary change" from its prior devices. (Rossetto Dep. at 59) Defendant has manufactured a rotary shear virtually identical in structure to the shear disclosed in claim 1 of the '502 patent. (D-44 tab 11)

achieves the same result as the omitted element. *See Water-Meter Co. v. Desper*, 101 U.S. 332 (1879):

> It may be observed, before concluding this opinion, that the courts of this country cannot always indulge the same latitude which is exercised by English judges in determining what parts of a machine are or are not material. Our law requires the patentee to specify particularly what he claims to be new, and if he claims a combination of certain elements or parts, we cannot declare that any one of these elements is immaterial. The patentee makes them all material by the restricted form of his claim. *We can only decide whether any part omitted by an alleged infringer is supplied by some other device or instrumentality which is its equivalent.*

Id. at 337. (Emphasis added.) *See also* id. at 335.

The purpose of the intermediate guide plate called for in claim 1 of the patent in suit, and the means associated with the feeding plate for directing the web to the intermediate zone, is to conduct the web to a space between the upper and lower slitter-scorers during the production of mill run board — board which has neither been slit nor scored. Defendant's apparatus lacks the intermediate guide plate but retains the function of producing mill run board by conducting the paperboard through a space in either the upper or lower slitter-scorer; this space is created by moving the slitting and scoring tools out of the path of the web. In addition, defendant's apparatus employs substantially the same means for guiding the web through the slitter-scorer apparatus during the production of mill run board: front and rear guide plates are provided which receive the web from the feeding plate and direct the web to a rear diverter leading to a multi-level cut-off arrangement.

I know of no rule of law that says the structural and functional equivalent of the omitted element cannot be

found in another component part of the claimed combination, particularly where, as here, it was old and well known in the industry to produce mill run board by running the web over the bare shafts of the slitter-scorer units.[69a] On these facts, I find that defendant's apparatus employs a mechanical equivalent of the intermediate guide plate which performs the same function as the omitted element to achieve the same result.

With respect to reversal of the location of the slitting rolls and scoring rolls in the slitter-scorer units, this attempted distinction is clearly without merit.[70]

In summary, even if the patent in suit is accorded a narrow range of equivalents, I find that the two machines — and the particular elements thereof — are equivalent in means, operation and result. Such a finding does not end the inquiry, however, for it must be determined whether plaintiffs are barred by the doctrine of file wrapper estoppel from asserting that claim 1 can be read on a slitter-scorer apparatus employing two flow paths.

Defendant contends that original claims 1-5, as filed, covered a two board line system wherein the paperboard web could be selectively routed to either of two vertically disposed slitter-scorer units. According to defendant, these claims were rejected by the Examiner, *inter alia*, on the basis of prior art, and were thereafter amended to narrow their scope to the particular embodiment disclosed in claim 1 of the '502 patent: a three flow path machine. Defendant urges that plaintiffs, having surrendered a claim covering a two board line system to overcome a rejection based on the prior art, cannot now argue that an apparatus employing two flow paths infringes the patent in suit.

69a. *See generally Magrath v. Draper Corp.*, 384 F.2d 672 (1st Cir. 1967); 69 C.J.S. Patents §301 at 875.

70. *See generally* U.S. Patent No. 1,959,424 (D-3) which teaches the separation of the scoring rolls from the slitting rolls; note 49 *supra*.

Under the doctrine of file wrapper estoppel, a patentee whose claims were rejected as unpatentable over the prior art and who thereafter amended his claims to restrict their scope and obtain their allowance is estopped from contending that the claims should be interpreted as broadly as if the narrowing amendment had not been made. *See Trio Process Corp. v. L. Goldstein's Sons, Inc.*, 461 F.2d at 75. Such an estoppel arises not only where existing claims are amended to add elements or limitations, but also where claims which have been rejected over the prior art are cancelled, leaving only narrower claims. As the court stated in *Trio Process*:

> The doctrine is based on the theory that the prior art is either in the public domain or already patented, so that the patentee may not claim it as part of his invention. By redrafting or abandoning a claim in the face of a prior art rejection, the patentee is contending that he has not invented what he thereby disclaims, and therefore will not be heard to assert, at a later date, what he disclaimed as his invention. Accordingly, for "file-wrapper estoppel" to become operable, it is necessary, at the least, that a claim have been narrowed to avoid the prior art. Bishman Mfg. Co. v. Stewart-Warner Corp., 380 F.2d 336 (7th Cir.), cert. denied, 389 U.S. 897, 88 S.Ct. 216, 19 L.Ed. 2d 214 1967).

Id. Hence, it is necessary to determine what, in fact, the patentee gave up in order to receive his patent.

Original claims 1-5, as submitted, read as follows:

> 1. A slitter-scorer apparatus for cutting and fluting materials along a running direction which comprises, in combination,
>
> (a) a rotary shear device containing an upper roll which is provided with a cutting edge and a lower roll provided with a cutting edge-receiving portion which is adapted to receive

the depression of the cutting edge, means associated with at least one of the upper and lower rolls for bringing the cutting edge and the cutting edge-receiving portion into engaging and disengaging relationship with respect to each other, means for rotating said rolls in opposite directions

(b) at least one slitter-scorer device disposed behind the rotary shear, said slitter portion of the device including an upper tentering roll provided with an upper cutting edge and a lower tentering roll provided with a lower cutting edge which corresponds to and is adopted to engage the upper cutting edge, said rolls being mounted for rotation, said scorer portion containing an upper fluting roll provided with male fluting edges and a lower fluting roll provided with corresponding female fluting edges, said upper and lower fluting rolls being adapted for engagement and disposed behind the upper and lower tentering rolls, respectively, and said fluting rolls being mounted for rotation, means for rotating the upper and lower tentering rolls and the upper and lower fluting rolls,

(c) a front guide means extending from the exit of the rotary shear to inlet of the slitter-scorer devices and

(d) a rear guide means extending from the exit of the slitter-scorer device to "the next device."

2. The apparatus of claim 1 wherein the cutting edge of the rotary shear extends from the circumferential surface of the top roll.

3. The apparatus of claim 2, wherein upper and lower slitter-scorer devices are utilized, said slitter-

scorer devices being vertically disposed with respect to each other.

4. The apparatus of claim 3, wherein the upper and lower cutting edges of the respective tentering rolls are circular and extend vertically from the circumferential surfaces of said rolls.

5. The apparatus of claim 4 wherein the male and female fluting edges are ciruclar and extend vertically from the circumferential surfaces of said rolls.

In rejecting these claims under §103, the Examiner cited five references to show the state of the art, *all of which were single board line systems*. The specific grounds for disallowance related to the cutter device, the rear guide mechanism and the placement of the slitting and scoring tools on separate shafts; there is no mention of flow paths in the office action. On these facts, the conclusion is inescapable that original claims 1-5 were directed to the single path structure illustrated in figure 21 (*see also* Japanese application No. 72-34700 at pgs 69-103 of D-2) and described on pages 35-49 of the patent application,[71] and were treated as such be the Examiner.[72] Although the language of the claims is perhaps sufficiently broad to cover a multiple path arrangement, the blunt fact of the matter is that nowhere in the claims, drawings or written description of the original application is there a disclosure specifically directed to a

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71. Since plaintiffs will be estopped, if at all, by the "file wrapper," I do not consider it inappropriate to go beyond the ambiguous language of original claims 1-5 to aid in their interpretation.

72. Indeed, the applicant filed an amendment in which he reclaimed the single board line system which had previously been disallowed. (*See* D-2 at 169-170, 177.)

Defendant's experts admitted that claims 1-5, as filed, would cover the single path arrangement disclosed in figure 21. (Tr. at 473, 525, 532, 587-589; *see id.* at 469-474; *see also id.* at 484-485.)

two flow path machine, and the rejection was clearly unrelated to any such feature. I will not assume that the applicant "made a disclaimer broader than necessary to yield to the actual challenge to his claim." *Hunt Tool Co. v. Lawrence*, 242 F.2d 347, 354 (5th Cir. 1957); *Swift Chemical Co. v. Usamex Fertilizers, Inc.*, 197 U.S.P.Q. 10, 20 (E.D. La. 1977). There is no estoppel.

III

A. Patent Misuse

In light of my determination that claims 1 and 24 of the patent in suit are invalid for obviousness, I need not reach the question of whether the '502 patent is unenforceable due to patent misuse. However, to provide a full record for possible appellate review, *see Novelart Manufacturing Co. v. Carlin Container Corp.*, 363 F. Supp. at 80, I shall address this final defense raised by Molins.

Defendant asserts that the '502 patent has been misused by reason of the inclusion in the Rengo-Simon license agreement of October 29, 1976 (P-7) of an obligation to pay royalties on spare parts, repair parts and replacement parts for the licensed product. (*See* note 1 *supra.*) According to defendant, an agreement which calls for the payment of royalties on the component parts of a patented combination which are not, in themselves, patentable constitutes an unlawful extension of the patent monopoly in violation of the principles established by the Supreme Court in *Mercoid Corp. v. Mid-Continent Investment Co.*, 320 U.S. 661 (1944).

Defendant's claim of patent misuse fails on the facts. In *Mercoid*, the Court held that the owner of a combination patent may not use the patent to secure a monopoly of an unpatented device employed in practicing the invention, even though the component element is an integral part of the patented combination. The controversy in *Mercoid* centered around a license agree-

ment under which the patent owner, Mid-Continent, granted to Minneapolis-Honeywell an exclusive license to make, use and sell a patented heating system.[72a] The royalty payments under the license, however, were based solely upon the sales of an unpatented stoker switch, an element of the patented combination manufactured by the licensee. Minneapolis-Honeywell, in turn, conditioned the grant of sub-licenses to use the heating system on the purchase of the stoker switch from it and the use of the switch in the system. In ruling that the licensor and licensee had improperly extended the grant of the patent monopoly to unpatented devices, the Court stated:

> There was ample evidence to sustain the findings of the District Court that respondents endeavored to use the license agreement so as to prevent the sale or use of combustion stoker switches in these heating systems unless they were the switches made by Minneapolis-Honeywell and purchased from it or its sub-licensees.

320 U.S. at 663. Later, the Court remarked:

> [T]he fact remains that the competition which is sought to be controlled is not competition in the sale of the patented assembly but merely competition in the sale of the unpatented thermostatic controls. The patent is employed to protect the market for a device on which no patent has been granted.

Id. at 677. Therefore, the evil condemned by the Court in *Mercoid* was the use of the license to secure a limited monopoly in an unpatented element of the combination.

In the present case, by contrast, Simon's customers are free to manufacture their own spare parts or to purchase them from any other available source; there is

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72a. Neither the licensor nor the licensee manufactured the patented combination.

nothing in the license agreement which requires a purchaser of corrugating equipment to obtain spare parts, repair parts or replacement parts from Simon, Rengo or anyone else. There is no evidence that plaintiffs have attempted to use their patent rights to prevent, control or inhibit the sale of spare parts for slitter-scorers, or indeed that they have the power to do so. On these slender facts, no inference of impropriety can be drawn.

Perhaps apposite is the following statement by the court in *Busse v. United States*, 437 F. Supp. 928, 933 (E.D. Wisc. 1977):

> The contention by defendant that the assignment formula, tying the royalty rate to sales of palletizers and the non-patented de-palletizers, raises the possibility of patent misuse or antitrust violations is not convincing to the Court. *Misuse of patent and antitrust laws focus on impairing the operation of the free market place and the lessening of competition.* Here the monopoly enjoyed by the owner is government created and government sanctioned. The measure of the price for the patent, i.e., sales of palletizers and de-palletizers was not forced upon an unwilling purchaser who had to buy A and B to get A; *nor was competition in the de-palletizer market affected in any way by this assignment.*
>
> * * *
>
> [While] patentees do not have carte blance authority to condition the grant of patent licenses upon the payment of royalties on unpatented articles, neither is it per se a misuse of patents to measure the consideration by a percentage of the sale of items covered by the patent and not covered by the patent. Under the facts of this case, the Court cannot find patent misuse or antitrust implications.

(Emphasis added.)[73]

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73. On whether there has been a "conditioning [of] the grant of a patent license upon payment of royalties upon products which

B. Defendant's Antitrust Counterclaim

Defendant seeks by way of counterclaim a declaratory judgment that plaintiffs have violated the antitrust laws of the United States. Specifically, defendant argues that plaintiffs conspired to restrain trade and attempted to monopolize the market in dual flow path slitter-scorers by commencing and prosecuting this lawsuit when it lacked a good faith belief that defendant's apparatus infringed the '502 patent. According to defendant, plaintiffs' true motive in filing suit was to stifle competition by discouraging other manufacturers of corrugating equipment from offering for sale a two board line system of their own. In support of its argument, defendant points to certain documentary evidence (*see* D-22, D-23, D-26, D-42, D-55) which, it urges, clearly establishes that plaintiffs had little or no confidence in the strenghth of their position at the time suit was filed and that the action was commenced solely to forestall others from offering competing apparatus in the marketplace.[74]

I refuse to infer from the exhibits offered by the defendant that plaintiffs acted in bad faith in instituting this lawsuit, particularly in light of my finding that if claims 1 and 24 of the patent in suit are valid, there is infringement of the '502 patent. The documents upon which defendant relies demonstrate a concern on the part of plaintiffs that the claims of the '502 patent could be restricted to a machine incorporating three flow paths for the paperboard web—*i.e.*, a flow path leading to each

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Note 73 — *(Continued)*

do not use the teaching of the patent." *Zenith Radio Corp. v. Hazeltine Research, Inc.*, 395 U.S. 100, 140 (1969), *see* discussion of defendant's antitrust counterclaim *infra*.

74. Defendant has offered no proof of any damage casually related to plaintiffs' alleged misconduct. Indeed, defendant does not even specify the particular provisions of the antitrust laws upon which its claims are based. Nor does defendant identify the relevant product and geographical markets, or the exclusionary power of plaintiffs in those markets.

slitter-scorer unit, and a path leading to an intermediate zone located between the devices. However, these exhibits also indicate that the issue was "far from clear" in the minds of plaintiffs; that plaintiffs' attorney in the United States "felt that arguments in favor of infringement could be fielded;" that plaintiffs believed that defendant's method of producing mill run board could be construed as employing "the mechanical equivalent of the intermediate board-line," and that "infringement can frequently be established when an omitted element, especially an inessential one, is replaced by its mechanical equivalent." (D-22, D-55)

If patentees were only allowed to maintain an action for patent infringement in clear cases of infringement, the right conferred by the patent laws would indeed be a hollow one. Yet, to rule in favor of defendant on this issue would mean that in close cases, a patentee must forego an infringement action or risk running afoul of the antitrust laws. That this is not, and cannot be, the law, there can be little doubt. The evidence does not make out any abuse of patent rights or other invasion of defendant's interests. No evidence suggests use of the patent to suppress competition that plaintiffs knew, or should have known, was lawful and non-infringing. Plaintiffs' conduct in instituting this lawsuit was, accordingly, permissible and not actionable.

Defendant's second claim under the antitrust laws relates to the inclusion in the Rengo-Simon license agreement of October 29, 1976 of an obligation to pay royalties on spare parts, repair parts and replacement parts for the licensed product.[75] According to defendant, plaintiffs have unlawfully tied the payment of royalties on unpatented (and unpatentable) articles to the grant of the license to make, use and sell the patented apparatus. Defendant urges that such an arrangement consti-

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75. Simon had not actually made any such payments under the license agreement at the time suit was filed.

tutes a per se violation of the antitrust law for which it is entitled to relief without proof of damages.

The elements of proof necessary to establish the existence of an illegal tying arrangement were recently set forth by the Third Circuit in *Ungar v. Dunkin' Donuts of America, Inc.*, 531 F.2d 1211 (3rd Cir.), *cert. denied.* 429 U.S. 823 (1976):

> To prove a per se illegal tie-in, a plaintiff must establish three things. First, he must establish that the conduct in question was a tie-in: "an agreement by a party to sell one product *but only on the condition that the buyer also purchases a different (or tied) product.*" *Northern Pacific Ry. v. United States, supra*, 356 U.S. at 5, 78 S.Ct. at 518, 2 L.Ed.2d at 550. Second, he must establish that the seller "has sufficient economic power with respect to the tying product to appreciably restrain free competition in the market for the tied product." *Ibid.* at 6. And third, he must establish that "a 'not insubstantial' amount of interstate commerce is affected." *Ibid.*
>
> Obviously, with respect to the first element, a formal agreement is not necessary, although it is sufficient. But, in the absence of a formal agreement, a plaintiff must establish in some other way *that a tie-in was involved and not merely the sale of two products by a single seller.* This can be done by proof that purchase of one product, the tied product, *was not voluntary, i.e., by proof of coercion.*
>
> * * *
>
> . . . proof of a tie-in must focus on the buyer, because *a voluntary purchase of two products is simply not a tie-in.*

531 F.2d at 1223-24. (Emphasis added.) Later, the court remarked:

> Establishing that buyers purchase products A and B from the seller does not establish that the seller ties the sale of product A to the purchase of product B. It merely establishes that buyers purchase products A and B from the seller. *Cf.*

Id. at 1225. Although *Dunkin' Donuts* involved the question of the propriety of granting class certification in a class action brought by franchisees against their franchisor, "the principles announced in *Dunkin' Donuts* are stated so categorically, that the Court seems to be giving an authoritative definition as to what constitutes an illegal tie-in, in this circuit, under any of the relevant antitrust provisions." *SmithKline Corp. v. Eli Lilly & Co.*, 427 F. Supp. 1089, 1114 (E.D. Pa. 1976), *aff'd* 575 F.2d 1056 (3rd Cir.), *cert. denied*, 439 U.S. 838 (1978).

Clearly, patent misuse and antitrust implications arise only where the patentee employs patent leverage to coerce a promise to pay royalties on articles not practicing the learning of the patent. *Zenith Radio Corp. v. Hazeltine Research, Inc.*, 395 U.S. 100, 138-141 (1969). Such coercive tactics cannot be inferred from a mere license provision measuring royalty payments, in part, on the sale of spare and replacement parts for the licensed product. *See id.* at 138; *see also Automatic Radio Manufacturing Co. v. Hazeltine Research, Inc.*, 339 U.S. 827 (1950); *Unger v. Dunkin' Donuts of America, Inc.*, 531 F.2d at 1224-26. The record in the present case is devoid of any evidence that Rengo conditioned the grant of the license upon the payment of royalties on unpatented products and, therefore, defendant's allegation of an illegal tie must fail.[76]

Moreover, the essence of the illegality of a tie-in is that it forecloses competition in the tied product market. As stated previously, Simon's customers are free to man-

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76. *See* Allen Dep. at 15.

ufacture their own spare parts or to purchase them from any other available source. There has been no effort on the part of Rengo to control, inhibit or dominate the market in these products, nor is any such anticompetitive result the necessary effect of the license arrangement. Having failed to offer any proof on the essential elements of its claim, defendant's allegations concerning violations of the antitrust laws must be dismissed.

IV

Under 35 U.S.C. §285, "[t]he court in exceptional cases may award reasonable attorney fees to the prevailing party." While the imposition of increased damages under 35 U.S.C. §284 and the award of attorneys' fees under §285 do not raise identical questions, the considerations underlying both remedies are similar. Attorneys' fees can be assessed only upon a finding of unfairness, bad faith or inequitable or unconscionable conduct. *ADM Corp. v. Speedmaster Packaging Corp.*, 525 F.2d 662, 664 (3rd Cir. 1975). Furthermore, the conduct must be such that it would be grossly unfair to require the prevailing party to bear the burden of its own attorneys' fees. The award of attorneys' fees in patent litigation is the exception and not the rule.

I do not believe that this case is an "exceptional" one which supports the assessment of attorneys' fees against plaintiffs. In light of my prior findings, it cannot be said that the case was pursued in bad faith, or that plaintiffs lacked a good faith belief in the validity of the '502 patent or its infringement by defendant's apparatus. Accordingly, defendant's request for attorneys' fees will be denied.

CONCLUSION

The court has jurisdiction over all the issues raised in plaintiffs' complaint and in defendant's counterclaim.

Claims 1 and 24 of the patent in suit are invalid for obviousness under 35 U.S.C. §103.

If valid, claims 1 and 24 of the patent in suit are infringed by defendant's apparatus.

Defendant's request for attorneys' fees is denied.

Defendant shall submit an order, with consent as to form, if possible, within 10 days.

DATED: July 31, 1980.

UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

Nos. 80-2556/57

RENGO CO. LTD. and SIMON CONTAINER MACHINERY LIMITED,
Appellants in No. 80-2556

v.

MOLINS MACHINE COMPANY, INC.
Appellant in No. 80-2557

ON APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF NEW JERSEY

(D. C. Civil No. 78-02000)

Present: ADAMS and GARTH, *Circuit Judges*; and DUMBAULD, *District Judge.**

JUDGMENT

This cause came on to be heard on the record from the United States District Court for the District of New Jersey and was argued by counsel on March 23, 1981.

On consideration whereof, it is now here ordered and adjudged by this Court that the judgment of the said District Court, entered August 20, 1980, be, and the same is hereby vacated and the cause remanded for further proceedings in accordance with the opinion of this Court.

ATTEST:

Clerk

July 20, 1981

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*Honorable Edward Dumbauld, Senior Judge, United States District Court for the Western District of Pennsylvania, sitting by designation.

Opposition

Office - Supreme Court, U.S.
FILED
OCT 22 1981
ALEXANDER L. STEVAS,
CLERK

No. 81-602

IN THE

Supreme Court of the United States

OCTOBER TERM, 1981

MOLINS MACHINE COMPANY, INC.,
Petitioner,

v.

RENGO CO. LTD., *et al,*
Respondents.

On Petition For Writ Of Certiorari
To The United States Court Of Appeals
For The Third Circuit

RESPONDENTS' BRIEF IN OPPOSITION

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PRESS OF BYRON S. ADAMS PRINTING, INC., WASHINGTON, D.C.

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RESPONDENTS' BRIEF IN OPPOSITION

Respondents, Rengo Co. Ltd. and Simon Container Machinery Ltd., pray that the Petition of Molins Machine Company, Inc. for a Writ of Certiorari to review the judgment and opinion of the United States Court of Appeals for the Third Circuit entered on July 20, 1981 be denied on the ground that the judgment below is not ripe for review.

STATEMENT OF THE CASE

Petitioner's statement of the case is accurate but incomplete.

As Petitioner says (p. 3):

> "This case involves the validity of a patent claiming a combination of old elements."

What Petitioner does not say is that the judgment and opinion sought to be reviewed *do not decide the question of patent validity.*

The Court below stated:

> "Occasionally, a reviewing court, when presented with a finding of patent invalidity premised on incorrect legal standards, will proceed to decide the validity issue on its own, without remand to the trial judge. Under the circumstances of this case, however, we believe the better practice is to allow the District Court to reexamine the '502 patent under the *Graham* test." (pp. A-22, 23)

The Court also stated:

> "Because we believe that the district court — which decided that the patent in question was not enforceable — erred in imposing a synergism requirement, we vacate and remand." (p. A-2)

The judgment (p. A-96) implements this decision.

REASONS FOR DENYING THE WRIT

In the present posture of the case, there is no judicial decision as to the validity of the patent in suit. The Court of Appeals declined to decide the issue and vacated the holding of the District Court.

In the contemplation of the Court of Appeals the question of the validity of the patent in suit is to be determined *in the future* by the District Court, possibly to be followed by a further appeal to the Court of Appeals.

Whether or not a second appeal will be pursued depends on the disposition and interest of the parties at that time.

If a second appeal is lodged; if, as a result of that appeal, the decision of the Court of Appeals raises issues which merit the attention and interest of this Court, and if, at that time the party adversely effected by the decision, has sufficient interest to seek review by this Court, this Court will have a solidly based Petition upon which it may act.

As matters now stand the judicial ship is dead in the water at midstream, pointing toward neither shore. Until it resumes and completes its journey there is nothing for this Court to review.

CONCLUSION

For the foregoing reasons, the Petition should be denied.

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Petitioner's Reply Brief

No. 81-602

Office - Supreme Court, U.S.
FILED
OCT 31 1981
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Petitioner

v.

RENGO CO. LTD., ET AL,
Respondents

PETITION FOR WRIT OR CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT

PETITIONER'S REPLY BRIEF

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October, 1981

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No. 81-602

IN THE
SUPREME COURT OF THE UNITED STATES

October Term, 1981

MOLINS MACHINE COMPANY, INC.,
Petitioner

v.

RENGO CO. LTD., ET AL,
Respondents

PETITION FOR WRIT OR CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT

PETITIONER'S REPLY BRIEF

The respondents' Brief in opposition to the Petition for Writ of Certiorari raises the issue that this case is not ripe for judicial review because the Court of Appeals did not rule on validity of the patent.

This argument is entirely without merit.

The opinion of the Court of Appeals, as to the legal standards to be applied when considering patent validity, conflicts with the standards of other Courts of Appeals, is final, and is binding upon the District Courts in the Third Circuit. A conflict between the Circuit Courts of Appeals has always been recognized as ground for granting certiorari. See, *Rowan Cos. v. United States*, ____ U.S. ____, 68 L.Ed.2d 814, 101 S.Ct. 2288 (1981); *Texas Industries v. Radcliff Materials*, ____ U.S. ____, 68 L.Ed.2d 500, 101 S.Ct. 2061 (1981); *Scindia Steam Nav. Co. v. De Los Santos*, ____ U.S. ____, 68 L.Ed.2d 1, 101 S.Ct. 614 (1981); *HCSC-Laundry v. United States*, 450 U.S. 7 (1981); *Firestone Tire & Rubber Co. v. Risjord*, 449 U.S. 368 (1981); *Environmental Protection Agency v. National Crushed Stone Association*, 449 U.S. 64 (1981); *Northeastern Pennsylvania National Bank & Trust Co. v. United States*, 387 U.S. 213 (1967); *Avco Corp. v. Aero Lodge*, 390 U.S. 557 (1968).

CONCLUSION

The arguments presented in the Respondents' Brief are irrelevant and the petition should be granted.

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